BLM LIBRARY
88048023

UNITED STATES

DEPARTMENT OF THE INTERIOR

FINAL
ENVIRONMENTAL STATEMENT
Volume 3 of 5

Proposed
1975 OUTER CONTINENTAL SHELF OIL AND GAS GENERAL LEASE SALE OFFSHORE SOUTHERN CALIFORNIA

(O.C.S. Sale No. 35)

Prepared by the

BUREAU OF LAND MANAGEMENT

Curt Berklund

Director

Bureau of Land Management
Library
Denver Service Center

BLM LIBRARY
RS 150A BLDG. 50
DENVER FEDERAL CENTER
P.O. BOX 25047
DENVER, CO 80225

ID88048023
PROPERTY OF
Bureau of Land Management
D S C LIBRARY

TD
195
.P4
C346
1975
V.3

VOLUME III

IX. CONSULTATION AND COORDINATION WITH OTHERS. 1

- A. Preparation of the Draft Environmental Statement . . 1
  - 1. Groups Contacted for EIS Input and Review. . . . 1
    - a. Federal. 1
    - b. Regional Government. 1
    - c. State of California. 1
    - d. County Government. 1
    - e. City Government. 2
    - f. Citizens and Professional Groups 2
  - 2. Other Groups Contacted 2
    - a. Federal. 2
    - b. State of California. 3
    - c. County Government. 3
    - d. City Governments 4
    - e. Private Companies and Organizations. 4
    - f. Universities and Research Organizations. . . 5
  - 3. Public 5
- B. Coordination and Review of the Draft Environmental Statement Leading to Preparation of the Final Environmental Statement. 6
  - 1. Federal Agencies 7
    - a. Federal Energy Administration (FEA). 8
    - b. Energy Research and Development Administration (ERDA) (1). 11
    - c. Energy Research and Development Administration (ERDA) (2). 14
    - d. Environmental Protection Agency (EPA) 19
    - e. Department of Commerce (DOC) (1) 71
    - f. Department of Commerce (DOC) (2) 76
    - g. Department of Transportation - U.S. Coast Guard (USCG) (1) 90
    - h. Department of Transportation - U.S. Coast Guard (USCG) (2) 95
    - i. Department of Defense (DOD). 99
    - j. U.S. Geological Survey (USGS). 101
    - k. U.S. Fish and Wildlife Service (FWS) 107
    - l. Bureau of Mines (BOM). 119
    - m. National Park Service (NPS). 122
    - n. Bureau of Outdoor Recreation (BOR) 128
  - 2. State Agencies 141
    - a. The Resources Agency of California 142
    - b. California Coastal Zone Conservation Commission 193

BLM LIBRARY
RS 150A BLDG. 50
DENVER FEDERAL CENTER
P.O. BOX 25047
DENVER, CO 80225

Bureau of Land Management
Library
Denver Service Center

3. Local Government. 207
    a. Southern California Council of Local Governments 207
    b. Southern California Association of Governments 460
    c. Environmental Improvement Agency County of San Bernardino. 471
    d. County of Orange, Environmental Management. . 478
    e. Comprehensive Planning Organization of the San Diego Region. 485
4. Public Hearing Testimony and Record 493
5. Other Public Comments 577
    a. Dames and Moore 578
    b. Atlantic Richfield Company (ARCO) 749
    c. Mobil Oil Corporation 469
    d. Additional Written Comments 772

IX. Consultation and Coordination with Others

A. Preparation of the Draft Environmental Statement

1. Groups Contacted for E.I.S. Input and Review

In the preparation of this Draft Environmental Impact Statement (E.I.S.) the following organizations were contacted by mail and requested to provide: (1) Input to the E.I.S. working outline, (2) Designation of a personal contact for additional input or clarification, if needed, (3) Review of the rough Draft E.I.S. prior to submission to Washington, D.C.

a. Federal

Air Force, Space and Missles Systems Organization (SAMSO)
Coast Guard
Corps of Engineers
Environmental Protection Agency
Fish and Wildlife Service
Geological Survey
Maritime Administration
National Marine Fisheries Service
National Park Service
Navy, Commander Naval Air Pacific (COMNAVAIRPAC)

b. Regional Government

Southern California Association of Governments Comprehensive Planning Organization - San Diego

c. State of California

California Coastal Zone Conservation Commission
State Lands Division

d. County Government

Los Angeles Regional Planning Commission
Orange County Harbors, Beaches and Parks District
San Diego County Chief Administrative Officer
Santa Barbara County Environmental Department
Ventura County Planning Department

e. City Government

League of Cities (Request made through City of Los Angeles)

f. Citizens and Professional Groups

Americans for Democratic Action
Audubon Society of Los Angeles
California Citizen Action Group
California League of Conservation Voters
California Tomorrow
Center for Law in the Public Interest
Ecology Center of Southern California
Environmental Alert Group
Environmental Coalition of Orange County
Environmental Coalition of Ventura County
Environmental Data Research
Environmental Education Group
Fisherman's Cooperative Organization
Friends of Santa Monica Mountains & Seashore
Friends of the Earth
Get Oil Out
Isaac Walton League
League of Women Voters
Natural Resources Defense Council, Inc.
No Oil, Inc.
Ocean Fish Protective Association
Orange County Coast Association
San Pedro Environmental Action Committee
Sport Fishery Association of California
Tuna Research Organization
Wilderness Association

2. Other Groups Contacted

In the preparation of this Draft Environmental Impact Statement (E.I.S.), the following organizations were also contacted:

a. Federal

Ames Research Center
Bureau of Labor Statistics
Bureau of Mines
Bureau of Sport Fisheries & Wildlife
Commerce Department
Department of the Navy
Federal Power Commission
Fisheries Research Board of Canada

National Oceanographic Data Center
National Oceanic and Atmospheric Administration
Naval Civil Engineering Laboratories
Park Service, Channel Island National Monument
San Francisco Federal Reserve Bank
Transportation Department
Water Resources Council
William Finley National Wildlife Refuge
Willope National Wildlife Refuge

b. State Of California

Air Resources Board
Bureau of Agricultural Statistics
Crop and Livestock Reporting Service
Department of Conservation
Department of Finance
Department of Fish & Game
Department of Parks & Recreation
Department of Water Resouces
Division of Mines & Geology
Division of Oil and Gas
Employment Development Department
Lands Commission
Office of Planning and Research
Resources Agency - Federal - State Coordinator
Water Quality Control Board
Water Resources Board

c. County Governments

L.A. County Agricultural Office
L.A. County Air Pollution District
L.A. County Department of Overall Economic Development
L.A. County Flood Control District
L.A. County Planning & Economics Division
Orange County Agricultural Office
Orange County Air Pollution Control District
Orange County Planning Commission
Riverside County Air Pollution Control District
Riverside County Planning Commission
San Bernardino County Air Pollution Control District
San Bernardino County Planning Commission
San Diego County Agricultural Office
San Diego County Air Pollution Control District
San Diego County Comprehensive Planning Organization
San Diego County Planning Commission
Santa Barbara County Agricultural Office
Santa Barbara County Air Pollution Control District

Santa Barbara County Planning Commission
Santa Barbara County Schools Administration
Southern California Coastal Water Resource Project
Southern California Council of Government
Ventura County Agricultural Office
Ventura County Air Pollution Control District
Ventura County Planning Commission

d. City Governments

Avalon City Manager
Carson City Government
Long Beach Planning Department
Long Beach Port Authority
Los Angeles City Air Pollution Department
Los Angeles Port Authority
Oceanside City Government
Oceanside City Planning Department
Oxnard Economic Development Department
Santa Barbara Planning Department
San Diego City Planning Department
San Diego Port Authority
Santa Fe Springs City Government
Signal Hill City Government
South Gate City Government

e. Private Companies and Organizations

American Petroleum Institute
American Telephone and Telegraph
Atlantic Scientific Consultants
Bolt Beranek & Newman
California Audubon Society
Chase Manhattan Bank
Dames & Moore
E.G. & G. Environmental Services
Environmental Planning & Management Inc.
Environmental Research & Technology
Global Marine Drilling
International Telephone & Telegraph
Interocean Systems
Kahl Scientific Instrument Corporation
Living Marine Research
Lockheed Ocean Laboratory
Marine Biological Consultants
Oceanographic Services, Inc.
Pacific Seabird Group
Pacific Telephone & Telegraph

Phillips Petroleum Company
Plessy Environmental System
Raytheon Company
Security Pacific National Bank
Sherman Clark Associates
Southern California Academy of Science
Southern California Edison
Southern California Visitors Council
Standard Oil Co. of California
Tetra Tech Inc.
Ultra Systems, Inc.
United California Bank
Vetco
Wells Fargo Bank
Western Offshore Drilling
Western Oil and Gas Association
Westinghouse Corporation

f. Universities & Research Organizations

Allan Hancock Foundation
California Cooperative Oceanic Fish. Inv.
Duke University Marine Laboratory
California State University Long Beach
California State University Los Angeles
California State University Northridge
Environmental Research & Technology, Inc.
Food Chain Research Group
Lockheed Ocean Laboratory
Point Reyes Bird Observatory
Scripps Institute of Oceanography
Southern California Ocean Studies Consortium
Sea Grant Program Texas A & M University
Sea Grant Program University of California La Jolla
Sea Grant Program University of California Southern California
University of California, David
University of California, Irvine
University of California, Los Angeles
University of California, Santa Barbara
University of Rhode Island Marine Affairs Program
University of Southern California
Woods Hole Oceanographic Institute

3. Public

A formal public hearing concerning this proposed sale was held in Los Angeles, California May 6-8, 1975.

B. Coordination and Review of the Final Environmental Statement Leading to Preparation of the Final Environmental Statement

After the draft statement was prepared, copies were made available to Federal and State governmental agencies and the public. Comments and views were solicited from governmental agencies relative to the draft statement and the proposed action. In addition, comments and advice were solicited from the public at large, through formal and informal correspondence, and at a Public Hearing held May 6,7,8, 1975 in Los Angeles, California.

Most of the comments received were found to be significant, and appropriate changes have been incorporated into the final statement. For easy reference, we have numbered our responses to each comment and also have bracketed and numbered the appropriate section of the comment letter in the left margin. The comment letter precedes the response. The following section contains all comments of Federal, State, and local agencies, and other individuals or groups that commented during the prescribed comment period.

1. FEDERAL AGENCIES

FEDERAL ENERGY ADMINISTRATION
WASHINGTON, D.C. 20461

OFFICE OF THE ASSISTANT ADMINISTRATOR

8 JUN 1975

FEA 75-69

Mr. Curtis J. Berklund, Director
Bureau of Land Management
Department of the Interior
Washington, D.C. 20240

Dear Mr. Berklund:

This is in response to your letter of February 21, 1975 requesting our comments on the draft environmental impact statement for the Proposed 1975 Outer Continental Shelf Oil and Gas General Lease Sale Offshore Southern California (OCS Sale No. 35).

We consider the Outer Continental Shelf leasing program to be an important and major element of the national program for achieving self-sufficiency in energy. Consequently, we think that the program should be pursued in an orderly and expeditious fashion which takes account of our energy needs, environmental values, and the concerns of state and local parties.

Our comments on the environmental statement are presented in the following paragraphs.

① We suggest that in discussing the alternative leasing proposals in Chapter VIII.A, an estimate of the potential reduction in reserves should be included for each alternative proposal. For example, in considering an additional five mile protection zone around the sensitive marine mammal areas, the statement indicates this would require the deletion of nine complete tracts and portions of 37 others. As a way of putting this alternative in perspective, it would withhold from leasing about 78,000 acres out of a total 1,555,815 acres in the current proposed lease. If, on the other hand, there is reason to believe that these lands have more oil production potential per acre, then this should be mentioned.

② Finally, we think that it would be very useful to include the tract number designations on the map grid overlay for all of the maps. This would provide a better base for the discussions that are presented.

We hope that our comments will be helpful to you in the preparation of the final impact statement and in your further consideration of the proposal.

Sincerely,

Roger W. Sant
Assistant Administrator
Energy Conservation and Environment

a. Federal Energy Administration (FEA)

The Federal Energy Administration considers the OCS leasing program to be an important and major element of the national program for achieving self-sufficeincy in energy. The FEA suggested that estimates of reductions in resources, due to alternative leasing proposals, and a map overlay of tract numbers be included in the Final EIS.

Disposition

(1) USGS has not completed a tract by tract assessment of reserves. Consequently, an estimate of the reductions in reserves, due to alternative leasing proposals, can not be accurately determined at this time. However, an estimate of the reductions in acreage resulting from alternative leasing has been included in the Final EIS. See Section VIII.A.2.

(2) Graphic 15 has been added and includes tract numbers.

UNITED STATES
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
WASHINGTON, D.C. 20545

MAY 6 1975

Manager
Pacific Outer Continental Shelf Office
Bureau of Land Management
U.S. Department of Interior
300 North Los Angeles Street
Los Angeles, California 90012

Dear Sir:

This is in response to the letter dated February 21, 1975, from Mr. Frank A. Edwards, inviting the U.S. Atomic Energy Commission to review and comment on the draft environmental statement (INT-DES-75-8) concerning a proposed Outer Continental Shelf oil and gas general lease sale, OCS No. 25. As a result of the Energy Reorganization Act of 1974, the AEC was abolished and the Energy Research and Development Administration and the Nuclear Regulatory Commission were created.

① We (ERDA) have reviewed the subject draft statement and would like to refer to comments previously submitted by the AEC and ERDA as a result of the review of the Alternatives section of three documents prepared by the Bureau: (1) Energy Alternatives and Their Related Environmental Impacts, (2) INT-DES-74-90, and (3) INT-DES-74-110. Our views on the scope and depth of the treatment, as well as our staff comments are essentially as previously provided. Therefore, please refer to our transmittals of January 9, 1975, March 12, 1975, and April 11, 1975, respectively on these three documents.

② We would like to further comment that the statement concentrates heavily on the ecologic effects to the virtual exclusion of effects on human health. One would envision that spills would result in the distribution of many organic compounds which would be accumulated by the biota and eventually ingested by man. We would suggest that the final statement consider an analysis of the cacinogenic potential, or at least a possible dose, from such events.

Generally, we find that the draft does not present much which relates to human health effects. An exception does appear on pages 35-37 (Volume II) which deals with the estimated annual accidental death

② and injury rate to develop the field. We would suggest that these risks should be viewed in comparison with the relative risk-costs of energy production from coal, gas or nuclear.

Thank you for the opportunity to review and comment on this Statement.

Sincerely,

W. H. Pennington
Assessments and Coordination
Officer
Division of Biomedical and
Environmental Research

cc: CEQ (5)
F. A. Edwards, USDI/BLM

b. Energy Research and Development Administration (ERDA)

Comments received from ERDA concerned energy alternatives and the effects of oil operations on human health.

Disposition

(1) Section VIII.B. of the EIS has been revised and expanded for a more detailed analysis of energy alternatives. The comments mentioned have been considered in the preparation of this section.

(2) Possible food chain uptake and carcinogenic effects have been discussed in various sections of Section III of the EIS. See especially Sections III.B. and III.D.6. Refer also to the response to the Southern California Council of Governments comments in Section IX.B.3.

UNITED STATES
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
WASHINGTON, D.C. 20545

MAY 14 1975

Manager
Pacific Outer Continental Shelf Office
Bureau of Land Management
U.S. Department of the Interior
300 North Los Angeles Street
Los Angeles, California 90012

Dear Sir:

This is to further supplement our comments transmitted to you on May 6, 1975, regarding the Department's Draft Environmental Statement (DES-75-8) pertaining to the Proposed 1975 Outer Continental Shelf Oil and Gas Lease Sale Offshore Southern California (OCS No. 35). These additional comments are based on a recent field Laboratory review and reflect the impacts regarding air quality and non-spill pollution.

① We feel that the discussion presented for the air quality impacts do not compare favorably to those presented for OCS Sale No. 38. For example, a statement is made (Volume II, p. 183) that the impact onshore will be small and unimportant because of the distances from the shore to the lease areas are great. While this may be true for exhaust gases from stationary power units, we do not feel this would be valid for large accidental releases of gases or fines. Presently available data (E.G.R.E. Neligan, December 16, 1974, ARB Conference) indicates oxidant and/or oxidant precursors are subject to dispersion to areas up to several tens of kilometers away.

② We do not believe that a 4 percent overnight air mass retention figure is average or typical for the worst case condition. Both sulfur dioxide and sulfate aerosol are thought to be rather persistent in the atmosphere and contribute to problems hundreds of kilometers from the source. The sulfate aerosol also is thought to be a major contribution to visibility problems. A more realistic description would be that major spills or fires might result in a substantially degraded onshore visibility and might contribute to sulfate-related health effects, and could contribute to photochemical oxidants in the atmosphere. Natural releases of methane and ethane should have little to no significant effect on air quality.

There are other air quality hazards we feel may be understated. These are hazards from sulfur dioxide or hydrogen sulfide releases, volatile hydrocarbons from large scale oil spills, and oxides of nitrogen from flared gas fires. The final statement should attempt to address these hazards in more depth.

③ We do not feel that the seriousness of the impacts of non-spill pollutants has been adequately addressed. Specifically, the pollution potential of drilling muds and formation water has not been thoroughly assessed and the impact presented for pipeline burial is based mainly upon conjecture and is unsubstantiated. We note also that there is a lack of baseline data on the living resources of the Santa Rosa-Cortez Ridge lease areas.

An example of what we consider to be an incomplete treatment of the possible impacts from non-oil spill pollution is typified by the case of potential chromium contamination from drilling muds. Since the total mud discharge from the sixty offshore platforms is estimated to be about 1/2 million tons and drilling mud ferrochrome lignosulfates contains 3 percent chromium, the estimate of how much this particular mud contributes to the aforementioned total discharge is lacking. We would also like to see an estimate of the comparison of the annual emission rates for chromium with those of marine outfalls (695 tons/yr) from waste water treatment plants in the Southern California Bight. Although barium is also mentioned as a possible contaminant from the drilling muds, no estimate is presented as to the total amounts that may be discharged.

④ The discussion afforded the impact of formation water is not treated in as much depth as one would expect when the seriousness of the impact is indeed acknowledged. Although one cannot reliably predict the volume or composition of formation water, an upper estimate of 120 mgd volume equals between 15 percent and 20 percent of the domestic waste discharge volume into the Bight. An estimate can be made of the mass emission rates using the 120 mgd as a worst case using the concentration of constituents and characteristics of formation water discharged from the La Conchita Plant servicing a Santa Barbara Platform (Volume II, p. 7) as a best available approximation to be found in the OCS lease area. Using the above reference data, a five-day biological oxygen demand (BOD) was calculated and was found that the BOD exceeded that of the combined waste water discharges by a factor of about four. Using this frame of reference, we feel that the discharge of formation water presents an environmental hazard that should be properly addressed in the final statement. Other significant pollutants appear to be ammonium N, phenols, and nickel. In light of the above, we cannot agree with the conclusion in the statement that formation waters represent a potential significant hazard that will degrade water quality and may have possible irreversible effects on the marine biota (Volume II, p. 196) without some estimate as to the magnitude of this insult in a more quantitative manner.

⑤ Although the nearshore lease areas of the sale, Santa Monica Bay and south of the Palos Verdes Pennrinsula, are some of the most intensely studied shelf areas in the world, little is known on the extensive offshore portions in the vicinity of the Santa Rosa-Cortez Ridge. We would like to see more study of the ecosystems of the nearby Santa Cruz and San Nicholas Basins since preliminary fauna collections have indicated a high rate of endemism.

⑥ Finally, we would suggest that the final statement provide a broader treatment of the synergistic pollution effects than presented in the draft. The ecosystem of the Southern California Bight already suffers numerous insults in the nearshore areas in the form of elevated levels of trace elements, PCB's, and pesticides. The introduction of intensive drilling will be at least additive, if not deleterious, and a more serious assessment of the impact of the more significant non-oil spill pollution should be made beyond just calling these impacts "significant."

Thank you for the opportunity to provide these additional comments and hope these will be useful in the preparation of the final statement.

Sincerely,

W. H. Pennington
Assessments and Coordination
Officer
Division of Biomedical and
Environmental Research

cc: CEQ (5)
F. A. Edwards, USDI/BLM

c. U.S. Energy Research and Development Administration (ERDA)

ERDA provided the following comments on the DEIS:

(1) The need to expand the onshore impact on air quality from both offshore and onshore activities.

(2) The need to relate the overnight air mass retention figure to a high case condition.

(3) The seriousness of impacts of non-spill pollutants.

(4) The annual emission rate of non-oil pollutants and the significance of formation water.

(5) Areas requiring further investigation for baseline studies.

(6) The need for a broader treatment of synergistic pollution effects.

Disposition

(1) It is agreed that the DEIS needs to be expanded in terms of discussing the onshore air quality impact. Refer to Disposition number 1 of the response to the Resources Agency of California. Also see Section III.F.1. of this statement for the revisions in air quality impacts.

(2) The four percent overnight air mass retention figure is for normal conditions in the Los Angeles air basin. The text has been expanded to account for abnormal conditions and to cover the information listed in Disposition 1 above. See Section III.F.1.

(3) We agree that the seriousness of the impacts of non-spill pollutants needs to be expanded. The discussion of these pollutants has been expanded based on the best available information.

(4) Within the text we have incorporated a discussion of the emission rate of chemical constituents which may occur from the discharge of formation water into marine waters. See Section III.F.2.

(5) In the ongoing baseline study we hope to compare past studies of the nearshore areas with the present results of the current project. It is agreed that the basins should be studied. However, with limited funds available and being areas of lower priority than the outer ridge area, the basins will have only a limited amount of study effort devoted to them. The outer banks, which are felt to be highly productive and environmentally unique, will be studied in the OCS baseline project.

(6) As suggested, the text has been broadened to include the potential of synergistic pollution effects from non-oil effluents. See Section III.F.2.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAY 23 1975

OFFICE OF THE
ADMINISTRATOR

Mr. Curtis J. Berklund
Director
Bureau of Land Management
Department of the Interior
Washington, D.C. 20240

Dear Mr. Berklund:

① The Environmental Protection Agency has reviewed the draft environmental statement for the Proposed 1975 Outer Continental Shelf Oil and Gas General Lease Sale Offshore Southern California (#35) and our detailed comments are attached. In our view this proposal represents a critical departure from recent OCS lease offerings for oil and gas development, since it involves the offering of 297 offshore tracts, most of which are located in water depths greater than 250 meters and in an area widely acknowledged to be geologically unstable. It appears that major portions of this acreage may have to be developed with radically new deepwater technologies. Our review of the draft EIS indicates that the description and analysis of this technology is insufficient and that the risks of oil spills due to failure of these technologies has not been assessed. Because of the lack of technological information on which to base a reasonable judgment that development of these tracts can be accomplished without unacceptable environmental damage, we have classified this statement as Category 3 -- Inadequate.

② We believe that the final statement should include a quantitative assessment of the equipment failure probabilities for the relevant deepwater technologies. To the extent that conventional, i.e. proven, systems and components can be expected to be applied, an extrapolation can be made of failure rates already experienced in other OCS areas. However, when the use of radically new technologies such as subsea production systems or tension leg platforms is anticipated, an explicit assessment should be made so that (1) component failure probabilities can be identified, (2) excessively hazardous technologies can be avoided or modified, and (3) industry can plan and make lease bids accordingly.

EPA believes that a strictly analytical assessment of failure rates can be made within feasible time and budgetary constraints. Such a study, if done in a comprehensive manner, should be sufficient for a reasonable judgment regarding risks. In fact, private industry has probably already compiled and assessed much of the applicable data. We do not foresee any necessity for onsite testing, although data from actual tests are to be preferred over analytical tests when available. Some specific questions which EPA suggests be addressed are:

②

a. - What generic problems can be expected with each system?

b. - What are the geological hazards associated with development in the area?

c. - Which systems have been tested and at what depths; is the data in the public domain?

d. - Which components are failure prone; are alternatives available and at what cost and risk?

e. - Which failures lead to chronic spills; how are they detected?

f. - Will additional sensors and redundant systems mitigate risk of failures and at what cost?

g. - Which failures lead to major spills?

h. - How can control of a discharging subsea wellhead be regained; how can oil be recovered?

In addition to the above analysis, the final EIS should include the following:

③ - Proposed deepwater operating orders. EPA believes that operating orders for deepwater facilities must be instituted to provide specific minimum standards for safe operations. These will assist industry in attaining low risk systems.

④ a. - Lease language that would inform bidders of investment risk. In the event that subsequent research determines that development of certain leases or development with certain technologies is environmentally unsatisfactory, it is important that Interior have appropriate language in the leases which would retain the maximum legal options that are available within existing authority. This would permit Interior the utmost flexibility to modify (and perhaps to deny) operating permits, or to provide an opportunity for public involvement.

Regarding the proposed sale itself, EPA is not opposed, in principle, to OCS oil production near California. However, in view of the critical nature of this sale from the standpoint of deepwater operations, we strongly suggest consideration of the following policies:

b. - Postponement of sale of the tracts with the greatest risk or which are in the deepest water. This policy could be selected in order to expedite a sale of some OCS lands this year and to delay a sale of problem areas until next year, by which time a more thorough analysis could be completed.

c. - Development of certain high-risk tracts under a prototype program (similar to that used for oil shale). In this case, certain research data would be made available to the public.

In addition to the above general comments, EPA would urge consideration of the following specific suggestions in order to provide maximum protection of environmentally sensitive areas of the Southern California Bight:

⑤ - Withdrawing the sale of tracts south of San Miguel Island. Relative to other areas in this sale these tracts seem to have lower hydrocarbon potential and higher environmental threat. Our analyses indicate that a spill from these tracts has a significant chance of directly impacting San Miguel Island with unweathered crude oil and of possibly damaging bird rookeries and marine mammal hauling out areas. In EPA's judgment, these tracts may have the most adverse risk-to-benefit ratio (based on present knowledge) of the tracts proposed.

⑥ - Conditioning all leases with stipulations that clearly and explicitly set the Channel Islands as "out of bounds" for any petroleum support operations. One exception may be to use the islands for cleanup and containment staging areas, but only after careful site-sensitive location reviews are performed and all local approvals are secured.

⑦ - Establishing an appropriate protection zone for areas of special biological significance (ASBS). These areas are biologically unique and as elements of the Federal/State water quality standards for the ocean waters are fully deserving of maximum feasible protection. EPA supports either the outright withdrawal of the necessary tracts (as listed on pp. 440, 441, Vol. 2) or the prohibition of all offshore operations within the buffer zone around an ASBS.

⑧ - Requiring that transport of oil from leases to shore be by pipeline in order to reduce the probability of oil spills. Exceptions to this may be made in the cases of Santa Rosa-Cortes (South) if subsequent analysis indicates that the benefits of spill reduction are not worth the estimated cost.

⑨ The aforementioned problems regarding the examination of developmental issues underscore the difficulty of assessing all anticipated environmental effects of this action within the framework of an EIS prepared on the lease sale. Most of the developmental options must be estimated, and therefore prediction of impacts is at best generalized and speculative. EPA believes that subsequent public examination of development plans (including analyses of offshore and onshore primary and secondary effects) would facilitate a more timely and meaningful evaluation of environmental impacts to be expected from site-specific developmental activities. We believe this concept should be pursued by the Department as a primary means of improving the quality and usefulness of the environmental review in decision-making on development plans. This was discussed more fully in EPA's January 10, 1975, comments on Interior's draft environmental statement regarding the Proposed Increase in Acreage to be Offered for Oil and Gas Leasing on the Outer Continental Shelf.

Other areas treated in our specific comments are time focus of the EIS, research needs, tract selection process, onshore impacts, critical environmental resources, oil spill statistics, ship traffic, subsea production systems, and mitigatory actions.

Thank you for the opportunity to review this draft environmental statement. We hope our comments will assist in the preparation of a final. We will be happy to meet with you to discuss these comments further.

Sincerely,

Rebecca W. Hanmer

for Sheldon Meyers
Director
Office of Federal Activities

Enclosure

EPA EIS# D-BLM-A02071-CA

ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

MAY 1975

ENVIRONMENTAL IMPACT STATEMENT

DETAILED COMMENTS

PROPOSED 1975 OFFSHORE SOUTHERN CALIFORNIA OUTER CONTINENTAL SHELF OIL AND GAS LEASE SALE (#35)

TABLE OF CONTENTS

Introduction 1

Time Focus of the EIS 3

Research Needs 4

Tract Selection and Leasing Process 6

Onshore Impacts 8

Critical Environmental Resources 12

Critique of the Environmental Assessment 13
- Spill Statistics 13
- Scenarios 18
- Spill Trajectories 18
- Location of Spills 20
- Impacts on Natural Resource Areas 20
- Ship Traffic 21
- Subsea Completions 21

Mitigation Measures 22

Miscellaneous 25

INTRODUCTION

The proposed action under consideration is the leasing of 297 tracts encompassing 1.55 million acres in the Offshore Southern California Outer Continental Shelf. Although petroleum activities have been underway for some time in the State and Federal offshore areas, this action is most significant in that it represents a vastly increased commitment to petroleum development that will necessitate the use of radically new technology because of great water depths (greater than 250 meters). In addition, this is an area immediately adjacent to a major metropolitan complex, known for water-oriented recreational resources, and widely acknowledged to be geologically hazardous.

The environmental statement presents a wealth of information on the social, economic, and environmental resources of the Southern California Borderland and a lengthy analysis of anticipated environmental impacts. However, the nature of the proposed action and requisite technology has frustrated the task of adequately assessing the environmental impacts. The exploration, development, and production activities which follow the leasing involve widely varying impacts depending on the extent and location of reserves discovered and the rate and timing of development--factors which are presently unknown and can only be speculated upon. The significant divergence of estimates of recoverable reserves between the U.S. Geological Survey (1.6 - 2.7 billion barrels of oil) and the Western Oil and Gas Association (14 billion barrels of oil) illustrates a basic problem. Set against the uncertainty of these development factors is the profound lack of knowledge of the marine biological resources and the geologic hazards of the area.

In our view, the most serious shortcoming of the environmental statement is the lack of descriptive information on the new technology that will be needed to develop the majority of the tracts to be offered in this sale. Conventional platforms on the United States OCS to date have not exceeded depth capabilities of 600 feet, although a platform is under design for the Santa Ynez area that will be in 850 feet of water. Since the tracts offered in this lease sale are in waters as deep as 2200 feet, it is clear that vastly new and undemonstrated technology will have to be employed for development. EPA has great reservations about a large-scale offering of such tracts that will ⑩ necessitate the use of untested technology. If these tracts must be offered, then EPA feels that operating orders for deepwater facilities must be instituted to provide minimum requirements and standards for safe operations. A draft of proposed orders and a comprehensive risk analysis as detailed in our cover letter should be included in the final environmental statement, if a meaningful analysis is to be made. A description of and preliminary operational data on new platforms and subsea completion/production systems that are likely to be utilized in developing these leases should be set forth. In addition, hazard potential and contingency actions for spill incidents from these types of systems should be detailed.

Our remaining comments address the following topics: the time focus of the EIS, research needs, tract selection and leasing process, onshore impacts, critical environmental resources, a critique of the environmental assessment, and mitigation measures.

TIME FOCUS OF THE EIS

The EIS generally fails to establish a time-ordered framework for the development of the OCS resources and for the analysis of environmental impacts which accrue over time as a function of the rate and intensity of development activities. Environmental impacts vary considerably in each phase of the overall process from exploration through development and production, and impacts accrue cumulatively over time.

(11) The discussions of the impact on recreational resources (Vol. 2, Chap. 1), induced industrialization (Vol. 2, Chap. J.1.), and economic effects (Vol. 2, Chap. J.2.) each involve a time-phased approach to environmental impact analysis. However, the entire discussion of impact on biota, biological communities and commercial fisheries involves assumptions of worst case conditions evident at maximum daily production only. The EIS would greatly benefit from a perspective which focuses on phased and cumulative effects. Despite the difficulties cited on p. 141 in Vol. 3, forecasting of development and impacts over time can be done with some reliability. For example, the Interior Department or the oil companies should be able to project with some reliability oil flows into Southern California and relate this to existing refinery capacity.

Consideration of a time-phased impact analysis would be facilitated by a "dual-EIS" system such as discussed in EPA's comments on the BLM draft environmental statement entitled, "Proposed Increase in Acreage to be Offered for Oil and Gas Leasing on the Outer Continental Shelf." For example, an EIS on a proposed lease sale would focus on marine biological aspects and best available information on geologic hazards and result in a screening of tracts that can safely be developed. This EIS would also forecast preliminary development and associated impacts over time. Subsequently, a Federal, State and public review of proposed development plans and associated environmental impact analyses could be used to facilitate more complete review of pipeline corridors, coastal and other development, and related environmental effects than is now possible in lease sale EIS's. ⑪

RESEARCH NEEDS

The environmental statement presents extensive summaries of the state of knowledge of the marine environment in the Southern California Bight. However, adequate chemical and biological baseline data are not available, and the effects on the marine biota of major oil spills and chronic low level discharges are largely unknown. It is difficult to analyze the full environmental impact of the lease sale without a full knowledge of oil toxicity in a marine ecosystem. ⑫

The environmental statement likewise presents summaries of the geologic factors and the physical oceanography. However, adequate knowledge of geologic hazards and water circulation patterns is not available. These physical factors are most significant in that sea floor instability may precipitate an oil spill, and surface and bottom currents may determine its ultimate disposition.

The Bureau of Land Management has apparently recognized these data deficiencies and research needs. [However, such recognition is outside the context of the Draft EIS.] BLM requested the Southern California Academy of Sciences to host a scientific symposium to assess the state of environmental knowledge for the Southern California OCS and to formulate recommendations for research. On December 5, 6, 7, 1974 the symposium was held at Long Beach, California. The "Proceedings of the Recommendation for Baseline Research in Southern California Relative to Offshore Resource Development" contain a series of specific research recommendations on biological oceanography, chemical oceanography, geological oceanography, and physical oceanography.

⑫ It is essential that these research recommendations be initiated immediately and that sufficent baseline data and research results are available prior to the commencement of production activities which may alter existing conditions. The final environmental statement should present a definite plan for implementing the recommendations of the Southern California Academy of Sciences concurrently with the initial pre-production activities. Such a plan should include a time-phased schedule for accomplishing the objective. The studies and data gathering activities should be completed and the environmental impacts fully analyzed before emplacement of permanent structures and production operations are permitted. Since the RFP's have been responded to as of May 16, 1975, and the Technical Proposals Evaluation Commitee will submit comments on these proposals by May 30, 1975, sufficient time seems available for preliminary results of the baseline study to be incorporated into the final statement.

TRACT SELECTION AND LEASING PROCESS

(13) The proximity evaluation and summary risk analysis is a most interesting and innovative approach to environmental assessment. The analysis considers oil spill events and structures with respect to the distance of each tract from significant natural and cultural factors and multiple use activities. EPA believes that it would be desirable to supplement this first-step proximity analysis with a detailed tract-by-tract geologic hazard analysis.

(14) In any case, it is not clear how this proximity evaluation will be used in the actual leasing process. Language on p. 343 states "we have no way of knowing which tracts will lease and which of those that do lease will eventually be the site of a fixed structure." This seems to imply that this proximity analysis won't be used at all.

(15) The discussion of "Alternative Areas Available for Leasing Within the Southern California Borderland Area" (Vol. 2, p. 445 et. seq.) contains an interesting discussion of how the 7.75 million acres included in the call for nominations was cut to the 1.55 million acres for the proposed lease sale. This information should be presented in the Description of the Proposal rather than buried in the Alternatives, in our view.

(16) EPA is pleased to note that a 3/4 mile buffer has been established around the State offshore lands which are included within the State petroleum sanctuaries. This buffer zone should act to prevent drainage of the State oil resources and thus enable the State to avoid premature development. (The State must develop their submerged lands if drainage from the Federal OCS occurs.) EPA strongly endorses establishment

of an appropriate buffer zone (at least six miles) for protection of Areas of Special Biological Significance. These areas are biologically unique, and as elements of the Federal/State Water Quality Standards for the ocean waters are fully deserving of maximum feasible protection. EPA supports either the outright withdrawal of the 25 full tracts and 29 fractions of tracts (as listed on pp. 440, 441, Vol. 2) or the prohibition of all offshore operations within a prescribed radius of an ASBS.

(16) Tracts numbered 1-15, 18-21, 28-29, and 36 seem to have the most adverse risk-to-benefit ratio of those considered, based on present knowledge of risk. If an oil spill were to occur in these tracts, our analysis indicates that there is a significant chance of the oil coming ashore on the Northern Channel Islands, particularly San Miguel.[1] Although all the Islands have significant ecological value, EPA believes that the possible impact of oil on the marine mammals on San Miguel is of special importance. The worst case is if a spill comes ashore when the young are nursing, in which case significant ingestion would probably occur. Oil from a spill is expected to wash ashore very quickly with little time to "weather" so that a comparatively large portion of its more toxic elements would be present. Since these tracts do not appear to have a relatively high potential to produce oil or gas, compared to some of those south of Santa Cruz and Santa Rosa Islands, EPA believes that the tracts should be deleted from the sale.

(17) EPA acknowledges that knowledge of near-surface structural conditions is fundamental to a sound lease management program for the OCS. On p. 403 (Vol. 2), it is stated "High-resolution geological data covering all tracts to be offered for sale will be purchased by the USGS . . . ." and

---

[1] See below, page 18.

⑰ "Interpretations of high resolution bottom profile data, that disclose bottom conditions posing special environmental hazards for drilling or producing operations in the offshore area, will be made available to the Bureau of Land Management prior to the decision to issue a lease, and to the Geological Survey prior to approval of drilling operations." (Emphasis added). EPA appreciates that USGS will make good use of this data. It would be highly important for BLM to utilize this data in awarding leases as well. The final EIS should further discuss BLM's intent to use geophysical data in the leasing process. Such discussion should include the timing of such data acquisition in the context of research needs as noted above.

The experience of the Santa Barbara blowout should indicate that extreme prudence be exercised with respect to geological hazards. When critical hazards are identified for a particular tract or series of tracts, consideration should be given to withdrawing such tracts from the lease sale. When geologic hazards are encountered in the exploration and/or development phases, considerations should be given to terminating the development of that tract and buying back the leasing rights.

ONSHORE IMPACTS

⑱ Since Los Angeles is expected to be the major staging area for OCS activity and production is expected to flow to Los Angeles/Long Beach, it would be highly appropriate to provide a baseline inventory of existing oil support facilities. Such an inventory should include: fabrication yards, equipment storage areas, construction staging areas, harbor facilities, marine terminals, pipeline rights-of-way, clean-up and containment equipment storage areas, tank farms, onshore pipeline distribution systems, refineries, petrochemical industries, etc.

⑲ The EIS discounts onshore impacts by virtue of the existing industrial infrastructure. However, to say an area is already industrialized says nothing about its ability to sustain more industrialization in a rapid fashion. The severity of onshore impacts depends on the existing inventory of facilities (see above) and the rate of offshore development. Of particular interest in the further industrialization of the LA/LB harbor complex is the disposal of industrial wastewaters. Volume 2, p. 710, Table II-124 indicates that virtually all of the dischargers are related to the petroleum industry. Although these sources are now under NPDES permits and abatement schedules, the longer range implications for petroleum related facilities development may be to increase the mass burden of industrial wastewaters discharged to the ocean. To the extent that the marine environment can be significantly stressed by industrial (and municipal) dischargers, and that offshore oil operations introduce toxic chemicals, every effort should be made to minimize and abate any further stress.

⑳ In recognizing the possible direction of the California Coastal Zone Management Plan, the environmental statement notes that "it is anticipated that any onshore development will occur further inland" (Vol. 2, p. 271). While new refineries may be sited inland, various other petroleum service facilities--construction staging areas, service and logistic bases, treating and separating facilities, marine terminals and pipeline landings, storage tank farms, etc.--may be located in the immediate coastal zone (for either imports or OCS oil). In any case, these facilities must be located somewhere.

It is imperative that effective coordination with all units of local government be effected to provide the land uses compatible with the necessary service facilities.

(20) To provide this element of coordination, it may be feasible to condition the lease sale upon the subsequent submittal of a 5 and 10 year development plan by the oil companies for the use of the local governmental units. Such a plan would outline the schedules of offshore development in relation to the construction of onshore support facilities. This plan could serve as a vehicle for planning coordination and act as an early warning device for possible use conflicts.

(21) In the Southern California area, air pollution has reached critical proportions. State and Federal efforts to abate the pollution to attain the National Ambient Air Quality Standards has led to the adoption of many control strategies which may bear upon the Federal OCS leasing program. Refineries and petrochemical facilities in particular will be carefully regulated; any new expansion will be required to utilize best available control technology (BACT) and must secure a permit from the Air Pollution Control District (or EPA) prior to construction. Due to the existing severe oxidant problem in the South Coast Air Basin, emissions of hydrocarbons will be very closely scrutinized, and any aggregate increase in total mass emissions of hydrocarbons may be the basis for a permit denial. The very limited land in the presently industrialized area of the South Coast Basin suitable for major new refinery projects indicates that capacity increases will occur by replacing

obsolete units with new units using BACT. To the extent that the new units have improved emission characteristics, overall air quality standards may be maintained.

Since the Federal OCS oil is expected to replace oil that is presently imported, and in view of the natural gas curtailment policies of the FPC and the California Public Utilities Commission, the anticipated sulfur content of the Federal OCS oil assumes great importance. Preliminary estimates of sulfur content should be set forth in the final EIS.

With respect to control strategies to control emissions of hydrocarbons, emissions from OCS offshore activities can be significant. Onshore air resources probably will not be affected by routine OCS operations. On the other hand, a major spill or gas blowout could have serious air air quality impacts onshore.

㉑ Page 183, Vol.2 states : "A major oil spill would release many pounds of hydrocarbons into the air, or from fifty to one hundred pounds per barrel of oil." Assuming a 100,000 bbl spill, and 50 lb HC evaporated per bbl, and a reactive fraction of 30%; the mass burden of reactive hydrocarbons released into the atmosphere is:

$$100,000 \text{ bbl} \times \frac{50\text{lbs}}{\text{bbl}} \times \frac{1 \text{ ton}}{2000 \text{ lbs}} \times .30 = 750 \text{ tons of RHC}$$

This increment is approximately equal to 50% of the total RHC now being released in the entire Los Angeles air basin. By any measure, emissions of RHC in this order of magnitude could have serious downwind consequences on oxidant levels depending on wind patterns, meteorological conditions (which also affect evaporation rates) and actual location of the spill.

㉑ The statement on p. 185 -- " A platform blowout or spill of oil or gas would result in varying degrees of deterioriation of air quality within the lease area, but there would be no onshore impact because of the dilution process that would occur in transit" -- is quite erroneous, and the final EIS should attempt to display a more realistic assessment of air quality impact. The methodology for such an air impact assessment could: assume a large spill (100,000 bbls) or a wild gas well[2] located 4 miles from shore, assume maximum evaporation rates, assume onshore winds in the summer season and low inversion heights, calculate the concentration of oxidant as a function of time and location with the South Coast Air Basin using currently available diffusion models, compare all calculated downwind concentrations with existing ambient oxidant conditions and arrive at a set of conclusions regarding the impact on the National Ambient Air Quality Standards which are designed to protect human health.

CRITICAL ENVIRONMENTAL RESOURCES

㉒ The Channel Islands represent a unique, invaluable, and irreplacable natural resource. The Channel Islands contain the only truly "pristine" marine communities that remain in the Southern California Region, and their relative inaccessibility has generally preserved many of the natural ecosystems from human encroachment. The summary contained on p. 456, Vol. 1 is an excellent citation of reasons why the Channel Islands are important to man.

Anacapa and Santa Barbara Islands are already parts of the National Park System; proposals have been set forth to include Santa Rosa and

---

[2] With 10-20% RHC

Santa Cruz Islands within the Park. San Miguel, San Nicolas and San Clemente are all military preserves and, if eventually declared surplus Federal property, could be transferred to the National Park Service.

Yet in the face of the acknowledged value of these Islands to the larger national interest, the environmental statement is ambiguous regarding their protection. On p. 14, Vol 1, it is noted: "No onshore facilities are anticipated for island areas." On p. 218, Vol. 2 it is stated: "Proposals to use some of the islands for oil related industrial sites has been expressed by the industry and their implementation would consititute an adverse impact probably for the duration of the project." In addition, development of the outer areas such as Cortes-Tanner Banks and Santa Rosa Ridge will involve high cost support due to the long distance from the mainland; this will add to pressure to use the islands for storage and staging areas. ㉒

EPA recommends that all leases contain stipulations that clearly and explicitly set the Channel Islands as "out of bounds" for any petroleum support operations. One exception may be to use the islands for cleanup and containment staging areas, but only after careful site-sensitive location reviews are performed and all local approvals are secured.

A CRITIQUE OF THE ENVIRONMENTAL ASSESSMENT

Spill Statistics

㉓ Table III-4 (P. 11, Vol. 2) and Table III-5 (p. 13, Vol. 2) indicate that by far the highest number and volume of spills occur in terminals and offshore production facilities--both areas where high levels of technical control measures can and should be applied. The study done for EPA

㉓ by the Computer Sciences Corporation suggests that remedy of certain technological and operational inadequacies could significantly reduce the number and size of oil spills. The final environmental statement should fully discuss these remedial measures and plans for implementation.

㉔ In discussing pipeline accidents (p. 15, Vol. 2), the EIS alludes to "tortuous bottom terrain" in the Pacific OCS. However, no mention is made of the tectonic and geologic process that formed this bottom terrain, or the safety of any pipeline that is laid across it. The issue of pipeline safety with respect to geologic hazards should be thoroughly discussed in the EIS.

㉕ The final EIS should present a rigorous analysis and comparison of oil spill potential between pipeline transport of oil to onshore facilities and tanker/barge transport. The pipeline analysis should consider the limits to deepwater pipelaying, and geologic hazards in the Southern California Bight.

The tanker/barge analysis should consider all risks associated with navigation hazards in the Southern California Bight including foggy conditions. If the Porricelli spill ratios (.08% tanker and .03% barge) are used, their use should be justified as appropriate for the Pacific OCS conditions.

㉖ Transportation of oil from the Santa Barbara - Santa Catalina, Santa Monica, and Huntington Beach tracts to nearby shore, can be done with substantially less risk and cost by pipeline than vessel. To the extent possible, transportation of oil from these tracts should be by pipeline.

EPA suggests that the possibility be investigated of writing lease stipulations which would ensure that the safer mode of transport would be used so that potential bidders could plan accordingly.

It appears from preliminary results of studies being done for EPA under contract that transportation of oil from the Santa Rosa-Cortes (North) area can be done at equivalent costs for both tankers and pipelines, however, the statistically expected amount that each mode would spill favors pipeline transport by a considerable factor. EPA believes that alternative pipeline routes require explicit analysis because, although costs and risks of spills can be reduced by laying a pipeline to Ventura via Santa Cruz Island, the ecological impacts on the Island would be severe, and may well argue for a totally underwater pipeline which would be about as costly as a tanker operation.

㉖

EPA believes that tanker operations from this area are inferior to pipelines for two other reasons - discharge of contaminated ballast by tankers, and the risk of accident to the storage system and to service tankers. A segregated ballast system for vessels or storage facilities can mitigate the first problem, but EPA can suggest no economically feasible storage system that can avoid the risks either of earthquakes (for bottom-mounted systems) or of ground tackle failure (for floating systems).

Transportation costs from Tanner Bank and other areas within the Santa Rosa-Cortes (South) area clearly favor vessels over pipelines because of absolute distance and because pipelines will probably be forced to detour to the north. Nonetheless, there are substantial benefits to be gained from the use of pipelines:

- deballasting is avoided
- storage accidents are avoided
- the annual statistical amount spilled is significantly lower than that expected from tankers
- the worst feasibly expected spill from pipelines is significantly lower than that for tankers.

(26) For these reasons, EPA believes that the issue requires consideration and probably more analysis. The analyses being conducted for EPA are substantially completed, and we will provide detailed information from our studies (including data on relative risks and costs) as soon as it is available. We believe that it is important to determine whether pipelines will be required prior to the sale, so that this information can be available for consideration in bidding.

(27) If pipelines are not required, EPA believes that vessels and storage systems used on the OCS should have segregated ballast and that alternative storage systems should be evaluated to determine their risk to the environment. To the extent that OCS operating orders and lease stipulations are appropriate, EPA recommends their consideration.

Specific issues are:

- At what depth of water are bottom-mounted storage tanks feasible, and at what cost?
- Can bottom-mounted tanks avoid an oil-to-water interface, and discharge of contaminated ballast?
- What is the risk of rupture in an earthquake, and what is the probability of various intensities of earthquakes in the Outer Banks area?

- What is the cost of segregating ballast in a floating storage system ?
- What is the risk of failure of the storage mooring, can the risk be reduced, and can risks of collision or ramming with the tanker be reduced ?

On p. 38, Vo. 2, a summary table is shown for Annual Rate of Oil Spills. Several questions and observations are keyed to this important table:

(28)

a) The numbers that appear in this summary appear no where else in the EIS and cannot be related to any discussion of environmental impacts.

b) These numbers are not related to the oil spill scenarios which follow in the EIS, i. e. :

Large spill = 100,000 bbl. vs. High case 80,000 - 114,000 bbl/year
Small spill = 500 bbl. vs. High case 2,100 bbl/year

c) These numbers are not related to statistical analysis of spill quantities presented on p. 409, Vol 2. (In fact no basis is given for the numbers shown on p. 409.)

d) The number for "well blowouts during drilling" (39,900 bbl) is not substantiated in the text. This implies one blowout per year on the order of Santa Barbara. Or from another perspective (using 2100 bbl per blowout from p. 20) the 39,900 figure can represent 20 blowouts per year. If these numbers are at all reliable, the effectiveness of the operating orders in preventing blowouts may be questioned.

(28) e) As useful as this table is, it is not complete with respect to total amount of oil spilled in the ocean environment. The EIS should contain a complete summary of oil spills for the OCS operations and the "background" spill quantities due to other tanker traffic, activities on state submerged lands, activities in Santa Barbara Channel, and oil seeps occurring naturally in the ocean floor.

(29) The Santa Barbara overview on pp. 49-55, Vol. 2 states: "Santa Barbara blowout studies are the best to predict oil spill impacts when one occurs as a result of the proposed lease." No doubt this is true, but this statement captures the missing point of the entire spill analysis--i.e., the aggregate level of oil spills must be put in the perspective of the number, magnitude, location, and recurrence for any meaningful impact analysis to be performed.

SCENARIOS

(30) The oil spill scenarios are presented but are never used in the sense that environmental impacts are related to any particular scenario. Case 3 (sinking oil) should have been used in analyzing the impact of oil spills on benthos, but apparently was not done.

SPILL TRAJECTORIES

(31) EPA believes there are serious problems with the analysis of spill trajectories performed by Intersea, Inc. for the Western Oil and Gas Association and used in the draft EIS. The principal deficiency is the failure to account adequately for wind variability and persistence. An analysis is being performed for EPA by Martingale Associates (Devanney et al.) which includes these effects. We believe this model (Markov, first order) allows for a more realistic tracking of a spill from its hypothetical launch

point to its ultimate destination, especially for short-lived and near-shore spills. Another advantage of this analysis is that it avoids the use of the concept of the "dominant wind" to calculate the resultant drift. This concept, which has been used by Intersea, grossly overestimates the wind contribution to spill movements. (For spills with long periods at sea, the model should give results similar to those obtained using wind rose data, as utilized by Intersea.)

(31) Preliminary results of the analysis being performed for EPA indicate that: (1) the great bulk of spills generally moved toward the coast, as predicted by Intersea; (2) however, for spills south of the Santa Barbara Channel Islands, the spills will generally move northerly and will probably impact the Islands and go into the Channel. EPA will provide detailed information concerning the nature and results of this study as soon as it is available.

(32) In addition to the above comments, we have other concerns regarding the discussion of spill trajectories; specifically, the discussion deals only with oil residing at the surface. Is the trajectory at all influenced by the origin of the spilled oil--e.g. from the bottom such as the Santa Barbara spill? The trajectory is subject to many variables which ultimately influence the deposition of the oil. What is the role of bottom currents in the diffusion of spilled oil? For example, on p.232, Vol. 1 it is noted that submarine canyons extend from the coastline to deep basins and serve as natural channels for downward transport of runoff, sand and debris. The final EIS should consider an analysis of a bottom origin spill.

LOCATION OF SPILLS

(33) Table III-12 (p. 56, Vol. 2) attempts to translate the MIT Task Force work on the Georges Bank to the California OCS lease sale. The result is an oversimplification of the fact that the sources of oil spills (massive, small, chronic) will result in responses (lethal, sublethal, coating, food web, habitat change) at virtually every geographic area (gulf, shoreline, estuary) in the Southern California Borderland. The location of the spill is critically important to the assessment of impact on any specific area--the generalized methodology utilized in the EIS does not lead to any meaningful conclusions regarding the actual impact on any marine community.

(34) The variables of oil spills and effects on marine communities (excellently described in Table III-11, p. 47, Vol. 2) indicates, the immensity of the task of relating OCS operations to the marine environment. This demonstrates that a narrower focus may be warranted--certainly the focus could be narrowed to the location of spills and site-specific factors relevant to each of the five major leasing blocks.

IMPACTS ON NATURAL RESOURCE AREAS

(35) In general, the entire analysis of the impact of oil on the marine biota appears to focus on "one-time" phenomena. The cumulative effects of recurring major and minor spills, and continuous and chronic discharges must be taken into account. Tables III-13 and III-14 (pp. 77 and 91 respectively) are good summaries of environmental impacts and do consider a frequency of occurrence. Yet the cumulative effects (after considering the frequency) are not set forth.

㊱ The relative impact on the benthos from sinking oil from a surface spill as opposed to oil originating from bottom fissures should be set forth in the EIS.

SHIP TRAFFIC

㊲ The Southern California Bight experiences heavy vessel traffic from recreational boating, maritime commerce, military operations, and oil tankers/barges. In view of the new traffic anticipated from the Alaskan "imports" and the anticipated crew boats, supply boats, pipeline-laying ships, tankers/barges/and lighters to be used in the Federal OCS, total vessel traffic and consequent accident potential become serious concerns. Very large crude carriers and LNG vessels operating in highly congested waters could portend a catastrophic accident.

SUBSEA COMPLETIONS

㊳ In discussing deepwater drilling and production technology as an *alternative* to the proposed action (p. 445, Vol. 2) it is noted: "The capability of a subsea production system to withstand an earthquake, slumping, sliding, or other potential geologic hazard is unknown at this time." Given the prevailing deep water depths in the California OCS and the technical limits to platform operations, it is evident that a major portion of the total acreage must be developed using new deepwater techniques and subsea production systems. The final EIS should set forth a plan of research and development to acquire, test, apply, and monitor these new techniques in conditions comparable to the California OCS. In the absence of fail-safe proven technology, subsea completions cannot be considered as a viable alternative (nor can they be considered as mitigating measures for visual impact).

MITIGATION MEASURES.

Given the seriousness of oil spills and chronic low-level discharges resulting from OCS operations, every conceivable way to reduce and mitigate the environmental impacts should be sought and implemented. Below is a listing of measures which EPA recommends BLM consider in the final statement.

(39) 1. The areas around the existing ocean outfalls are known to contain highly organic substrate and high concentrations of heavy metals and DDT. Pipeline routing should completely avoid these areas in order to prevent resuspension of these deleterious materials

2. Pipeline routing should completely avoid all ocean dumping sites to prevent the possible release of hazardous materials.

3. All dredging and dredge spoil disposal is regulated by COE(in consultation with EPA). All pipeline and/or channel dredging in existing harbors where there are high concentrations of heavy metals in the sediment should be carefully performed to minimize resuspension. Serious consideration should be given to land disposal of all polluted spoil with clean fill imported to backfill over pipelines.

4. Pipelines should be completed and in operation prior to the commencement of production in order to avoid the use of barges with their known high spill characteristics.

5. In the past, the location of pipelines and support facilities serving the OCS have been determined by industry initiative and economic incentive. To minimize construction in offshore and onshore areas, every effort should be made to unitize (share by more than one company) pipeline rights-of-way, marine terminals, and storage and separation facilities. In addition, whenever possible, unitization with oil operations in the State submerged land should be effected.

6. Barium and chromium compounds used in drilling muds are known to be toxic. Research should be initiated to find acceptable substitutes for these compounds. Alternatively, serious consideration should be given to transporting spent muds onshore for land disposal.

㊴

7. The USGS operating orders should be compared to the California Division of Oil and Gas regulations, with the highest standards of safety used consistently across the Southern California Bight.

8. The configuration of the estuary and harbor entrances along the Southern California coast is such that closure may be feasible in the event of an oil spill. Research should be undertaken to determine the feasibility of various closure barriers to protect estuarine resources from oil contamination.

9. The U.S. Coast Guard is in the process of implementing a new LORAN-C radionavigation system for the Pacific coast. All vessels used in support of OCS operations should be equipped with suitable receivers.

10. All oil barges/lighters/tankers serving the OCS operations should be required to carry out tank cleaning and deballasting operations to result in no discharge of oil.

㊴ 11. Since there are very few drillings rigs available near California it is possible that no rig would be readily available or technically capable of drilling a relief well, in the event of a blowout. Under those conditions, a well could discharge for a substantial period of time. An arrangement should be evaluated whereby no well would be drilled unless a qualified backup rig could be available within a specified time.

12. Research should be undertaken regarding the use of giant kelp (sacrificial kelp) to detain the onshore movement of oil slicks.

13. The mitigation of environmental impacts from exploration, development, and production phases of OCS operations is strongly dependent upon the resources available to the U.S. Geological Survey to carry out the task. The environmental statement should discuss the anticipated staff resources of the USGS to monitor and inspect the drilling and production activity, and enforce against violators.

MISCELLANEOUS

(40) The environmental statement uses gallons and barrels of oil somewhat carelessly. Because of the conversion factor this can be misleading. Consistent units should be used throughout the statement.

(41) The "Future Environment Without the Proposal" should be expanded to include a full discussion of 1) State production in State submerged lands, 2) oil imports and tanker movements, 3) new port facilities (deepwater ports), 4) planned LNG facilities.

(42) Federal OCS operations are presently underway in the Santa Barbara Channel at Dos Cuadros and Carpenteria as well as much activity in the California submerged lands. A summary of the operating experience in these fields with respect to construction techniques, operating orders, spill prevention and cleanup, etc. would be appropriate in the final EIS.

(43) The graphics provided with the impact statement are excellent, however, we feel it would be helpful to also display tract numbers on the areas defined as proposed lease areas.

d. United States Environmental Protection Agency (EPA)

This agency submitted several detailed comments concerning a wide range of subjects including the adequacy of deepwater technology, potential geological hazards, protection of the Channel Islands and pinniped rookeries, conflicts with ship traffic, oil spill statistics, onshore impacts and research needs.

Disposition

(1) The discussion and analysis of deepwater and subsea completion technology has been greatly expanded for this Final EIS. Existing technology is described and major research and development efforts are identified in Section I.G.

Although development of deepwater tracts will probably not occur within the next two or three years, if when they are submitted, development plans indicate an unacceptable environmental risk, Geological Survey will withhold approval of those development plans (30 CFR 250.12(c) and (d) and 250.34). However, failure rates for these systems may not be established by the time development plans are submitted for approval. See also response to EPA comment No. 2, and Sections VIII.A.7.&8.

(2) A quantitative assessment of equipment failure probabilities would not be appropriate or useful at this time. Deepwater systems are continuing in a research and development stage, and extensive testing has been done and will be going on for several years. As always in a new venture, some parts and procedures must be modified during the testing stage. Assuredly, such corrections are made with the intent to minimize the failure possibility and to make all devices fail-safe through automatic shut-in controls.

An expanded detailed discussion of deepwater technology can be found in Section I.G. Quantitative assessments of equipment failure probabilities based on failure rates for components have not been conducted. The U. S. Geological Survey will be conducting Failure Reporting and Corrective Action Programs to eventually establish failure rate data. If and when such failure rate data is available, it, along with a known reliability modeling procedure (such as the Monte-Carlo method or Games method), can be used to establish an analytical assessment of the equipment failure rates. It is anticipated that such information will be one of the products of the Systems Design Analysis and Failure Reporting and Corrective Action Programs when they have been implemented, and have been in operation long enough to establish a reliable data base.

a. Some generic problems expected with subsea systems include:

1. Leaking seals
2. Packing failures in valves
3. Corrosion pitting in pipelines
4. Sand erosion
5. Remote unit connecting cables

b. Geologic hazards are discussed in Sections II.A.4 and III.A.3.

c. See the expanded discussion in Section I.G. concerning the State-of-the-art deepwater technology

d. Failure prone components might include isolation valves, solenoid valves, hoses, seals, and level controls on subsea separators. Continuing research is concerned with improvement or elimination of all failure prone components.

e. Line break would lead to chronic spill. Most other malfunctions would shut-in systems as all systems are designed fail-safe to shut-in operations if a component fails. Spills are detected by pressure and flow sensors.

f. Systems are designed with as many sensors and redundant systems as are considered necessary to prevent failure. The designers of the systems must determine the point beyond which additional redundancy becomes superfluous.

g. See response to 2.a., above.

h. Discharging subsea wellheads could be controlled by use of pumpdown tools or relief wells. A discussion of possible procedures to be used in case of this type of accident can be found in Section IV.A.1.

(3) Operating Orders are intended to serve as standards and/or guidelines to achieve an objective safely and without pollution or waste. Such Orders are an extension of the regulations but provide much more detail than is found in the regulations. However, the Orders are written broadly to cover various phases of activity; namely, drilling, completion, production, and transporting. Orders cannot be written appropriately until experience and equipment usage shows the need. Writing Orders at this time on subsea systems would mean doing so with limited knowledge and with the risk of voiding some ideas or safety features already underway which may prove to be perfectly sound.

GS regulations require the operator to submit development plans for proposal production facilities. Such plans must be approved. The safety requirements built into current Orders require compliance within a subsea system, as applicable. If necessary, the Oil and Gas Supervisor may issue a Notice to correct an equipment or procedure error which appears urgent and cannot be handled suitably through the Orders process.

Current OCS Orders 2, 7, 8, and 9 are satisfactory for deepwater operations but plans will be initiated to develop an OCS Order for deepwater operations as the technology is further developed and more ongoing field test results are available. Present OCS Orders provide minimum standards for safe operations. Each application for a subsea installation, whether included in plans of exploration or plans of development, is given individual attention and an environmental analysis is prepared. All subsea production system applications are reviewed pursuant to OCS Orders 2, 7, 8, and 9.

(4-a) Requirements for approval of deepwater lease operations, including requests for approval of plans for development, are discussed in Section I.G. of this FES.

(4-b&c) Alternatives of deleting certain deepwater tracts from the proposed action and deferring the proposed sale of certain deepwater tracts are discussed in Section VIII.A. 7 and 8, respectively.

(5) This has been proposed as an alternative to modify the sale. Refer to Section VIII.A.3.

(6) BLM does not have the authority to prohibit development on the Channel Islands, but we share the concern for their protection. See the response to the U.S. Fish and Wildlife Service comment on Channel Island facilities.

(7) Refer to Section VIII.A.4. This has also been considered as an alternative.

(8) Pipeline and barging impacts and feasibility have been discussed in Section VIII.A.1., another alternative to modify the sale by considering withdrawal of one or more of the five proposed lease blocks.

(9) The department is investigating means to better insure adequate environmental review of development which would result from an OCS sale. See also Section VIII.E.2.

(10) Descriptive information and analysis of the new deepwater technology is located in Section I.G. and III.A.1.h.

(11) The proposed lease sale would result in a sequence of events which would each have specific and cumulative environmental effects. In general these events would consist of construction of offshore facilities, construction of pipelines or use of barges and construction of onshore support facilities.

For geophysical exploration during the exploration phase, the use of air charges and other non-explosive types of seismic sounding techniques has greatly reduced the effects of seismic exploration and should not cause any significant adverse effect on marine mammals or birds.

Drilling operations produce drill cuttings, muds and waters which could create localized increases in heavy metals or other toxic substances which have been shown to concentrate within the body tissues of fur seals, for example. (See Section III.A.1. Sections III.B. and III.F.2.) This could lead to reductions in pup survivals due to premature births and could also cause disorders of the liver or other organs. The sound frequencies produced by drilling could possibly affect female pinnipeds during breeding seasons as discussed in Section III.C.3.

In the construction phase, construction of offshore platforms and appurtenant facilities could also result in temporary disturbance to some species of marine birds and mammals and, if located in close proximity to rookery areas on the Channel Islands, could possibly result in enough disturbance to reduce or eliminate certain species from the rookery areas. Pipeline construction could result in localized disruption of marine bird and mammal populations, resuspended possible toxic substances during trenching operations, and possibly destroy critical habitats of rare or endangered coastal species listed in Section III.D.7.

Operation of producing wells, of course, creates the opportunity for oil spills, leaks or blowouts. The possibilities for such impacts on marine birds and mammals are discussed in Sections III.C.3. and III.D.3. and could result in the most critical impacts resulting from OCS operations.

Construction of onshore support facilities could remove around 100-200 acres of habitat for the life of the project resulting in displacement or loss of certain species. This could be a critical impact if such species are rare or endangered (see Section III.D.7.).

Concerning cumulative effects, we do not predict a significant cumulative impact on the biological communities as the result of this lease sale. As indicated in the EIS, when exploration and development proceed without unforseen mishaps or accidents, impacts are minor and generally of short duration. Recovery of destroyed organisms is largely supplied from outside the small area impacted. The above statement assumes that the safeguards recommended in this EIS and in the OCS orders (including protection of pinniped rookeries) have been implemented.

Impacts are significant when accidents such as oil spills occur or as the result of poor planning. The impact of chronic oil spill pollution is simply not well enough known to discuss much further than has already been covered in Section III.D.6. According to statistics, large spills will occur too unpredictably with respect to time and location and too infrequently for meaningful discussion of cumulative effects (see Section III.A.).

Section III.N. includes a discussion of the cumulative impacts of this and other major Federal Actions in the area.

The cumulative effect of several large sales is important and could cause significant impacts. Unfortunately at the present time the magnitude of these sales is not known well enough to discuss them with any degree of specificity. The next Southern California sale is scheduled for June, 1977 (see new proposed leasing schedule in Appendix 3).

(12) The recommendations of the Southern California Academy of Sciences formed an important part in developing the baseline studies initiated by BLM. Refer to Section I.D. for a summary of the baseline research proposal. Some of these studies have already started and the management contract has been let on the whole proposal.

(13) According to BLM Manual Section 3300.43, during the initial tract selection process, USGS field offices will furnish technical information used in determining tracts recommended for selection. An overview of the geologic hazards for the entire proposed tracts were selected and no major geologic hazards were noted.

No potentially hazardous activity or any construction may take place on any tract until USGS makes a detailed site analysis and grants or withholds approval. It is our view that a detailed analysis furnished for a specific tract and activity is far more beneficial than a tract by tract analysis at the beginning for the entire area.

A general overview of geologic hazards has been made in Section VIII.A.1. for each of the five areas.

(14) The proximity analysis is intended to provide the decision maker with data for each tract concerning the potential risks or benefits that might occur if the tract is leased. A Unit Resource Analysis was developed and used in the tract selection process. Also, it should be noted that leasing a tract does not necessarily preclude slant drilling from adjacent tracts or subsea completions. To clarify the statement on page 343: this statement does not "...imply that this proximity analysis won't be used at all." Whether or not a tract is leased depends greatly on whether it is bid on; whether a structure is erected depends on the resources it contains.

(15) We have added a cross-reference in Section I.C. to the more complete discussion of how the 7.55 million acres was cut to the 1.55 million acres developed in the alternative VIII.A.2.

(16) We acknowledge the possible need for measures to protect these particular values. However, we do not agree as suggested by EPA that all the tracts south of this San Miguel Island should be eliminated to assure protection. The deletion of active development of all tracts within six miles of the Channel Islands and other areas of Special Biological Significance is discussed in Section III.D.4. and is included as an alternative to modify the sale in Section VIII.A.4.

(17) The discussion in Section IV.E.4 has been revised to reflect the timing of the acquisition of this data and its use.

(18) The text has been expanded in Section II.G.1. to include a description of the existing oil support facilities.

(19) The comments in the text, Section III.J.1. of the DEIS relating to induced industrialization on the coastal zone, indicated minimal impact because of the vast amounts of existing industrial uses in the area. With such a large base to begin with, any new industry resulting from the proposed project would represent a very small percentage increase for the base. In Section III.J.1. additional information has been added to indicate the onshore needs of the industry for the life of theproject and quantitative analysis provided on the impact. The generation and disposal wastewater from such project has also been added.

(20) In reference to coordination with local governments, Section IX.A., Consultation and Coordination With Others, lists the governmental bodies contacted during the course of the preparation of the DEIS. The Bureau of Land Management invited those governmental bodies to review the DEIS prior to publishing in hopes of coordinating efforts and also in seeking a review for accuracy, adequacy, comprehensiveness, and general completeness. The State of California provided several reviewers who made significant contributions to the project as did a few of the county governments and regional agencies.

(21) It is agreed that the DEIS minimizes the onshore air quality impacts. Section III.F.1. and Section V.C. have been enlarged substantially to reflect the impact of oil spill evaporation on the onshore air, and the increase in air deterioration resulting from onshore operations. We have included greater quantitative analysis of the amounts of pollutants which would be introduced into the air and the types of negative impacts which would result.

(22) Refer to Section VIII.A. for proposed alternatives to protect the unique resources of the Channel Islands and mainland coast. See also our response to the U. S. Fish and Wildlife Service regarding use of the Channel Islands for petroleum facilities.

(23) A study, "Petroleum Systems Reliability Analysis", was conducted by Computer Sciences Corporation (CSC) which suggests that remedy of certain technological and operational inadequacies could significantly reduce the number and size of oil spills.

The procedure used by CSC for the proposed spill prevention program consists of a Spill Prevention Control and Countermeasures plan, a Spill Vulnerability Checklist, and the Spill Prevention Guidelines. It is suggested that all of these various measures could be fulfilled by using a full and comprehensive qualitative reliability prediction program whether it be a Fault Tree Analysis or a Failure Mode and Effects Analysis. The analysis should not only define what failed, its mode of failure, and the cause of each failure mode, but should also define the effects of the failure upon the equipment, subsystem and system.

Section 2 of this document contains four recommendations which were developed from the Petroleum Systems Reliability Analysis. The recommendations are all plausible and valid, but in our opinion, the intent of each one of them is either presently being performed by the offshore operators in the Gulf of Mexico OCS or is in the planning stage.

1. Through the use of the OCS Orders, guidelines for the prevention of oil spills and also for reporting of such have already been established and imposed. OCS Order No. 7 states, "that the lessee shall not pollute the water of the Gulf of Mexico and that he shall comply with the pollution prevention requirements which are presented in detail." In those instances where spills or leakage of oil and liquid pollutants do occur, the regulation definitely stipulates the requirements for inspecting, reporting, control and removal of the spills.

2. Application of systems engineering principles are in the process of being imposed upon the operators as a System Design Analysis Order and Standard. For initial implementation, this Order and Standard will require that the operator perform a reliability predictive analysis (as stipulated in the Standard) on all newly constructed oil and gas production facilities. This includes all production platforms, multi-well satellites, and single-well caissons. To further complement this systems engineering program, a Failure Reporting and Corrective Action requirement is being written which will attempt to gather failure information on certain pieces of safety equipment. It is hoped that through the use of this reliability prediction and reliability assessment program those pieces of equipment, the failure of which could lead to despoiling of the hydrospace, fires, explosions, or compromise of personnel safety, will be identified, thereby preventing the occurrence or minimizing the effects of accidents and malfunctions.

(24) The tectonic and geologic processes that formed the "tortuous bottom terrain" were discussed in detail in Section II.A. and Appendix 10.A. of the Draft EIS and are discussed in corresponding sections of this Final EIS. Pipelaying technology, and specifically problems in deepwater and rough terrain, are discussed in detail in Appendix 8 and Section I.G. of this statement.

(25) Section III.A. has been revised and expanded and includes a comparison of oil spill potential for pipelines and barges. Also refer to Section VIII.A.1.

(26) BLM plans to conduct a system study on pipeline corridors at which time a comprehensive analysis will be conducted concerning the area indicated by EPA. BLM appreciates EPA comments concerning transportation of oil by pipeline and vessels. BLM has requested results of the studies but they are not yet available. Refer also to Section IV.D.2. and 3. Rather than stipulating prior to the sale where pipelines must or must not be used, we feel this determination should be made on a case-by-case basis. Following exploration and the defining of fields, the completion of pipeline corridor studies by BLM, and the completion of EPA's studies, a much more accurate assessment can be made of the environmental risks of pipelines versus tankering. BLM's permit authority can be exercised at this time to ensure that the most environmentally acceptable route of transport is used.

(27) A detailed discussion of underwater storage tanks is included in Section I.G. The discussion treats the specific issues raised in this comment.

(28) Section III.A. has been revised and expanded to consider these and other comments. The figures in Section V.A. came from the spill scenarios in Section III.B. and the predicted annual rate summary table in Section III.A.

(29) The quoted statement in Section III.B. refers to the Santa Barbara spill as being the best to predict biological impacts for a spill of that magnitude, especially for this area. An attempt has been made in Section III.A. to estimate as best as possible the magnitude, number and recurrence of oil spills.

(30) Most of the impacts from the oil spill scenarios are carried through the various biological divisions in the DEIS as follows:

Plankton	Vol. II, p. 76
Nekton	Vol. II, p. 90
Benthic	Vol. II, p. 105
Marine mammals	Will be added for final
Bays, estuaries	p. 120
Intertidal	p. 131
Bird Life	p. 145
Channel Islands	--
Kelp Beds	p. 164
Commercial Fish	p. 176
Sports Fish	p. 253
Endangered Wildlife	Will be in final
Unique Environments	Will be in final

(31) Pertinent graphic and tabular data from independent investigators cited have been incorporated in the FES. Reference was made to the Intersea study where it was corroborative of the other investigator's findings. The entire study was not included in the DES because we had not reviewed the technical methodology utilized in the study nor had we attempted to corroborate all its findings through other investigators. BLM has requested copies of the study mentioned by EPA but they are not yet available.

(32) To our knowledge, there are no data or studies on the fate of bottom origin spills. Bottom currents would probably influence bottom origin spills or sinking oil from surface spills and could carry it into submarine canyons.

(33) The table in Section III.B. referred to is presented to give the reader a general idea of effects of spilled oil in various habitats. Impacts on specific habitats and marine communities are covered in the respective impact sections of Section III.

(34) We have assumed for our analysis that every proposed lease tract has the potential of an oil spill. Section VIII.A.1. has been added to present a summary and analysis of impacts for each of the five tract blocks.

(35) Refer to response number (11) above concerning cumulative impacts. In many cases, so little is known about impacts on biota or natural resources from a "one-time" phenomenon that it is very speculative to predict cumulative effects. In some cases, when the natural resource recovery time is less than the estimated occurrence frequency, the effect should not be cumulative. However, when the natural resource recovery time exceeds the occurrence frequency, the cumulative impacts could produce either additive or compounding effects. For massive accidents, such as large oil spills, with a low frequency of occurrence, the cumulative impacts would be expected to be minor. But for routine, frequently occurring discharges, such as formation water discharge and chronic low-level oil spillage, the cumulative

effects could be greater over a long enough time period. See Section III.N.

(36) The relative impact on the benthos from sinking oil from a surface spill as opposed to a natural seep from bottom fissures is an interesting question. Its answer is highly speculative. Although natural seeps vary from highly viscous asphalt-like crude to gas seeps, generally natural seeps have less of the more toxic low molecular weight fractions. Apparently, there is little difference in the relative amounts of the toxic diaromatics. Oil sinking because of adherance to sediment particles may cover a larger area of the bottom (because of current, etc.) and may cause more gill clogging of benthic filter feeders. See Section III.C.2.

(37) Increased ship traffic is not expected to be a major problem. The U.S. Coast Guard coordinates all ship traffic and will regulate safe shipping conditions. See Sections III.A.1, III.A.2.d, III.G. and III.N. for pertinent analyses.

(38) Subsea completion systems are discussed in more detail in the Final EIS. Research and development is presently being conducted by industry. See Section I.G. and Appendix 8.

(39-1,2,3 and 4) EPA recommendations to reduce and mitigate the environmental impacts of the proposed sale have been considered in the Final EIS and have been incorporated where feasible. Pipeline routing will be studied and potential impacts analyzed prior to laying of any pipelines. (See Section IV.D.) Pipeline corridors will be utilized wherever possible, to reduce areas of disruption and an environmental assessment will be made of any proposed route.

(39-5) Economic considerations serve quite effectively to minimize construction of offshore facilities. In addition we are proposing a stipulation to limit structures to the minimum necessary (Section IV.D.1.). State and local authorities also have substantial authority to limit construction of facilities for environmental reasons.

(39-6) BLM has been and is continuing to look for evidence as to the toxicity of barium sulfate (barite) and ferrochrome lignosufonate (two chemicals commonly used in drilling mud), but has found no information to lead to EPA's statement--i.e., "Barium and chromium compounds used in drilling muds are known to be toxic." Actually there are reports indicating that release of the toxic Ba^{+2} and hexavalent Cr^{+6} ions from these compounds into the environment is unlikely.

BLM is extremely interested in this subject and looks forward to receiving EPA's basis for such a positive statement.

Industry is currently studying possible substitutes for these compounds. A revised analysis of drilling muds is included in Section III.A.1.

(39-7) The GS Operating Orders are in a stage of review and/or revision almost continuously. In the revision process the State regulations applicable to the conditions are given due consideration. The State regulatory body, as well as industry and public personnel, are encouraged to set forth their views on a proposed Order so that the final Order will achieve the desired safety standard. The current procedure of issuing Orders is as follows:

1. Identify needs for new or modified standards and establish priorities.

2. Publish a Notice in the Federal Register of intent to prepare specific standards requesting input and assistance.

3. Prepare drafts of new, updated, or revised standards by one or a combination of the following methods:

   - o By use of input derived from step 2 above.
   - o By use of available in-house expertise.
   - o By arrangement with ANSI, ASME, ASTM, API, or other organizations who prepare standards.

4. Publish draft standards in the Federal Register for comments.

5. Consider the comments received, publish the final standards in the Federal Register, and incorporate them in an appropriate OCS Order by reference.

(39-8, 9, and 10) The mitigating measures proposed in these comments are worthy of thorough consideration. The Department is investigating the extent to which it can require these or similar mitigatory measures. We encourage the appropriate regulatory agencies to consider these and any other feasible steps to improve safety of operations and protection of the environment.

(39-11) See a discussion of mitigatory measures concerning this potential problem in Section IV.A.1.

(39-12) Based on present information, it appears that, in general, there are more efficient practical means to contain oil spills than by planting sacrificial kelp. However, certain State or local agencies might find it useful to investigate the feasibility of this technique for use in particular cases where geographic conditions are suitable.

(39-13) See Section IV.A.1.b. for a discussion of the inspection and enforcement capabilities of the Geological Survey in Southern California.

(40) We have tried to be more consistent in the FEIS.

(41) Section II.J. has been expanded to include a discussion of these items. For a discussion of impacts, see Section III.N.

(42) Detailed discussions on the operations in the Santa Barbara Channel, covering the specific points mentioned in this comment, can be found in a Draft Environmental Statement entitled Oil and Gas Development in the Santa Barbara Channel Outer Continental Shelf off California (DES 75-35) published by the U.S. Geological Survey in June, 1975.

(43) Tract numbers are shown on the impact potential graphic number 15.

35-6

UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Science and Technology
Washington, D.C. 20230

March 25, 1975

Mr. Frank A. Edwards
Assistant Director
Bureau of Land Management
U. S. Department of the Interior
Washington, D. C. 20240

Dear Mr. Edwards:

The draft environmental impact statement for Continental Shelf Oil and Gas General Lease Sale - Offshore Southern California, which accompanied your letter of February 21, 1975, has been received by the Department of Commerce for review and comment.

The statement has been reviewed and the following comments are offered for your consideration.

① 1. Ports and Shipping, Volume I, pages 628-629

It is suggested that the 1973 tonnage and traffic figures include all commercial activity in the lease area as set forth in the following tables.

PORT	TOTAL WATERBORNE TONNAGE*
San Diego	2,063,356
Long Beach	27,133,022
Los Angeles	25,977,491
Port Hueneme	1,109,381
Moro Bay	2,799
Newport Bay	58
Redondo Beach	94
Santa Barbara	4,933
Carpinteria	430,177
El Segundo	8,678,770
Encina	1,052,973

*Short Tons (2,000 pounds)

PORT	TOTAL WATERBORNE TONNAGE
Estero Bay	4,414,788
Huntington Beach	739,406
San Luis Obispo	973,739
Ventura Harbor	1,938,939

PORT	VESSEL ARRIVALS	VESSEL DEPARTURES**
San Diego	1,823	1,820
Long Beach	6,284	6,274
Los Angeles	12,707	12,721
Port Hueneme	945	946
Santa Barbara	202	202
Carpinteria	39	39
El Segundo	336	333
Encina	59	60
Estero Bay	243	241
Huntington Beach	25	24
San Luis Obispo	74	74
Ventura Harbor	107	108

①

**Excludes domestic fishing vessels

Source: Department of the Army - Corps of Engineers, Waterborne Commerce of the United States Calendar Year 1973, Part 4, Waterways and Harbors Pacific Coast, Alaska, and Hawaii

2. Tanker and Tank Barge Accidents and Operations, Volume II, pages 25-31

②

a. Figure III-2 on page 26, Figure III-3 on page 27, and Figure III-4 on page 12 do not relate accurately to the text description.

b. The discharge percentages assumed here for U. S. flag tankers (.08%) and barges (.03%) are derived from statistics for operations worldwide under a variety of operational conditions. For OCS oil and gas development, it may be more accurate to use the projected mean discharge rates developed by MIT specifically for such operations. See page 41 of Volume II. Based on the MIT approach, the mean discharge rate for tankers is .016%; for offshore pipelines it is .011%.

3. Pipeline Accidents, Volume II, pages 9 & 15-19

③ Due to the high vessel traffic density in the lease area, the three foot cover for pipelines outside of shipping lanes and anchorage areas may be insufficient protection. It is possible that, by error or in emergency, vessels may traverse or anchor outside of these safe zones. It is suggested that burial requirements be examined for safety hazards, especially where large, deep draft ships are concerned.

4. Tanker Traffic, Volume II, page 204

④ The discussion on tanker visits per day at various ports requires editing; the arithmetic appears in error. For example, the sum of 0.35, 1.28, and 1.69 is 3.32, not 2.85; the sum of 0.12, 1.12 and 1.22 is 2.46, not 2.93.

5. Transportation of Produced Oil and Gas, Volume III, page 129

The statement is made here that:

⑤

> "Nearly all hydrocarbons produced on the Federal OCS are transported by pipeline (as of 1971, only 3½ percent of OCS crude oil was transported by barge). All natural gas, of course, is moved by pipeline."

This statement of past experience conflicts with the estimated annual crude oil transportation requirements for the subject lease sale. Table I-1 on pages 14-15 of Volume I projects that 72 million barrels or 20 percent of the total annual high case production of 360 million barrels will be transported by tanker. The reason for this increased tanker usage is given on pages 29 and 30 of Volume II; several tracts proposed for lease are separated from land by water depths in excess of current pipeline technology, thus requiring heavy reliance on barging and tankering.

It is suggested that the statement quoted above be broadened
⑤ to indicate the following:

- increasing water depths preclude the use of pipelines in favor of tankers for transporting OCS oil production,
- the method of transporting gas found in deep water isolated areas.

Thank you for giving us an opportunity to provide these comments, which we hope will be of assistance to you. We would appreciate receiving a copy of the final statement.

Sincerely,

Sidney R. Galler

Sidney R. Galler
Deputy Assistant Secretary
for Environmental Affairs

e. U. S. Department of Commerce (DOC)

The comments offered by the United States Department of Commerce were in general concerned with the accuracy of data on waterborne traffic.

Disposition

(1) Ports and Shipping, Volume I, page 628-629

The recommended changes in the waterborne tonnages and vessel departures have been made.

(2) Tankers and Tank Barge Accidents and Operations, Volume II, pages 25-31.

a. Figures III-2, III-3, and III-4 have been reidentified to be compatible with the text description.

b. This section has been revised in the text. See Section III.A.

(3) Pipeline Accidents, Volume II, pages 9 and 15-19

The suggestion that the three feet cover for pipelines outside of shipping lanes and anchorage areas may be insufficient will be considered in the review and approval process for pipeline burial and corridors. These will be reviewed on a case-by-case basis by the Manager, Pacific OCS Office, Bureau of Land Management. See Section IV.D.2.

(4) Tanker Traffic, Volume II, page 204

The arithmetic has been corrected in the text.

(5) Transportation of Produced Oil and Gas, Volume III, page 129

The recommended change to include a broader description of transporting OCS oil and gas has been made. See Appendix 8.

35-47

UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Science and Technology
Washington, D.C. 20230

May 14, 1975

Mr. Frank A. Edwards
Assistant Director
Bureau of Land Management
U.S. Department of the Interior
Washington, D.C. 20240

Dear Mr. Edwards:

The Department of Commerce reviewed the draft environmental impact statement for "Continental Shelf Oil and Gas General Lease Sale - Offshore Southern California," and forwarded comments to you on March 25, 1975. We have developed the additional comments contained herein and transmit them to you with the understanding that they also will be considered in the preparation of the final environmental impact statement.

General Comments

The draft environmental impact statement gives a fairly thorough presentation of the existing marine environmental literature for the Southern California Bight. The basic problem is that much of the information available is not current enough to allow valid environmental impact assessments to be made. The evaluation of environmental impacts in quantitative terms is sketchy in many instances and numerous references are made to information gaps in the historical baseline data.

① The statement should include specific recommendations for studies which must be completed to fill these gaps and also should outline plans for the evaluation of future catastrophes which may occur in the leased areas.

② Those sections documenting manpower, capital, income, and production of fishery industries, both recreational and commercial, could be expanded. The statement should be expanded to provide a substantive discussion of how this proposal relates to and affects existing and proposed land and water use plans, policies and controls.

③ We do not feel that the document adequately addresses the question of the environmental impact of pollutant releases to the atmosphere from the drilling operation. Statements not quantified or substantiated include the following:

1. "the impact of exhaust emissions will be small and unimportant" (p. 183, Vol. II)
2. "the onshore impact will be negligible" (p. 183, Vol. II)
3. "the air degradation will be local and will not reach the shore in a concentrated amount" (p. 189, Vol. II)

No atmospheric diffusion model is mentioned and the rather extensive discussion of the climate of southern California and adjacent waters (pp. 53-73, Vol. I) is not related to the computation of quantitative pollutant concentrations resulting from the drilling operation, both offshore and onshore.

Specific Comments

Volume I

Page 24, line 13. Change "over" to "more than." "Over" is ambiguous--it could mean within the 100 miles rather than the more likely "more than."

Page 34. Figure II-17 indicates that the San Fernando earthquake had a magnitude of 6.4, while on page 35 it reads 6.6. Which is correct?

Page 37, line 13. Change to "through detailed geologic mapping, seismic study, other geophysical work, and trenching." Seismic study is geophysical work.

④ Page 80, line 7. Suggest changing ". . . and a sigma-t (i.e., density) surface of 26.54" to read ". . . and occurs at a sigma-t (i.e., density) level of 26.54."

Page 80, end of line 7. Suggest changing lines 7 through 10, beginning with "Measurements . . ." to read "Measurements of salinity and density, which are used to define the distribution of the undercurrent, show that the current is confined by the continental slope in the bight, where it is 20 km wide and 300 m thick."

Page 82, line 5 from bottom. Text states that currents differ 90° to 180° but what they differ from is not stated.

⑤ Page 82, paragraph 1. The statement on salinity maximum is not clear. Does it mean that the southern part of the undercurrent has a maximum salinity of 34.35% or that in general it is 34.35%? Previously, it was stated that the center of the undercurrent contained a salinity maximum of 34.4% to 34.6%.

Page 83, last line. Suggest changing "The surface current is dominantly . . ." to read "The surface current is primarily . . ."

Page 88, line 9. The statement ". . . with typical surface salinities of 33.5% at depth" is self-contradictory.

⑥ Page 98, paragraphs 1 and 2. These two paragraphs imply that even extensive, current field studies might not be able to define existing phytoplankton population parameters in the proposed leasing areas. The usefulness of the literature survey presented is therefore questionable.

⑦ Page 106, paragraph 1, line 17. Sentence (13) indicates that phytoplankton biomass was never the same over a 20-year period. The possible reasons for this lack of homogeneity (sampling inaccuracies, actual biological fluctuations, measurement limitations, etc.) should be discussed.

⑧ Page 124, paragraph 4. The first two sentences of this paragraph imply that insufficient studies exist to accurately assess the species composition and distribution of the zooplankton in waters overlying the Southern California borderland. If serious baseline information gaps exist, and available data only occasionally overlap, it would seem unlikely that seasonal fluctuations can be accurately assessed.

⑨ Page 126, paragraph 1. Reference is made to Seapy (1974) and a computer program written to accept abundance data for the different taxonomic groups of zooplankton, dates, sampling locations, and literature sources. Since much of the data to be used in developing the computer program is ten or more years old, its application to the assessment of existing conditions is questionable.

⑩ Page 145, paragraph 2. Once again reference is made to the lack of available biotic information. It seems unlikely that a good environmental impact assessment can be made from an insufficient data base.

Page 147, paragraph 2. Again, there appears to be a lack of adequate information upon which to base a meaningful environmental assessment.

Page 148, paragraph 1. Once again, it seems unlikely that such a lack of information could result in an adequate environmental impact assessment.

⑪ Page 156, Figure II-60. The data presented in this figure are approximately 10 years old. According to a more recent publication, "In the last 10 years, some of the major kelp beds of Southern California have all but disappeared. . ."* This observation suggests that the data in Figure II-60 may not be truly representative of existing conditions.

⑫ Pages 208-232. The age of much of the data presented in this section Mainland Shelf makes the applicability of that information to existing conditions questionable.

⑬ Page 275, paragraph 1. A good portion of this entire section is based on data from the Southern California Coastal Water Research Project. The final sentences in this paragraph indicate that the data they present for various areas are not comparable because of differences in sampling techniques. Therefore, the value of the "baseline" information presented in this section is questionable.

---

*Frey, H.W. 1971. California's living marine resources and their utilization. California Department of Fish and Game, 148 pp.

⑭ Page 286, paragraph 3. The final sentence in this paragraph points out the lack of some very necessary information regarding reproduction and early life histories of estuarine-oriented fishes. Without such information an accurate impact assessment of potential oil-related catastrophes on critical inshore areas cannot be made.

⑮ Page 289, paragraph 5. The paragraph points out the lack of data available on fish fauna of the Southern California semi-enclosed bays and estuaries. Once again, without such information an accurate impact assessment of potential oil-related catastrophes cannot be made.

⑯ Page 322, paragraph 3. The statement that bottom fishes caught by commercial trawling represent an insignificant fraction of the total Southern California fish catch is misleading. In the Santa Barbara area, California Department of Fish and Game data indicate that species caught by bottom trawling represent 25-30% of the total commercial landings. This is not an insignificant fraction for that specific area, and when future impacts are assessed this should be taken into consideration.

⑰ Page 323, paragraph 2. Sentence 2 of this paragraph is not supported by the commercial and sport fishing data we have reviewed. Substantiation should be provided.

⑱ Sentence 3 of this paragraph makes the deceptive statement that the California wetfish industry is now one-sixth as productive as it was in 1936. According to the same publication cited in the draft environmental impact statement (Frey, 1971), the data indicate that in 1936 the wetfish industry was, for the most part, a one-species fishery with the Pacific sardine accounting for more than 90 percent of the total wetfish catch. With the exception of the sardine, the data from Frey (1971) show that the productivity of the wetfish industry has, in fact, increased since 1936.

⑲ Sentence 2 also contends that the California catch of tunas is half as productive now as it was in 1936. This is also deceiving.

⑲ For example, if the same data from Frey (1971) were used to compare current values with those of the year 1933 it would appear that productivity for the California catch of tuna has increased 36-fold. Fishery statistics should be evaluated more carefully in the final impact statement. Catches of pelagic tuna populations can fluctuate widely on an annual basis and any comparison of productivity would have to be based on the averages of many years of fishing.

⑳ Page 340, paragraph 3. More current information regarding marine mammal populations and the endangered status of the whales off Southern California is available in:

> Report of the Secretary of Commerce. Administration of the Marine Mammal Protection Act of 1972. June 22, 1973 to April 30, 1974. Prepared by the National Marine Fisheries Service, NOAA. Reprinted from the Federal Register, Vol. 39, No. 122, Monday, June 24, 1974.

㉑ Page 634, paragraph 2. Our comments regarding page 323, paragraph 2, on the use of data from Frey (1971) regarding the declining fishing industry also apply here.

㉒ Pages 651-653. Documentation in these sections (Fishing Vessels, Processing Plants) is brief. The impact statement should include time series on numbers of commercial boats and fishermen, by gear type, and by port. Processing plants should be identified by location, type of processing, numbers of employees, and quantity processed by species in dollars and pounds. If it is possible that some fishermen and processing plants could be impacted by offshore oil operations, more effort should be spent in documenting the socio-economic status of the fishing industry.

㉓ Page 673, paragraph 2. The reference to Hester (1974) is not included in the literature cited.

This section is deficient in that there is no attempt to quantify the fisheries in terms of numbers of plants, numbers of boats, pounds of fish landed, numbers of people employed or value of the catch. These are essential data for evaluating alternatives for resource utilization where user groups may be expected to be in conflict.

Volume 2

(24) Pages 42 and 43. These pages include a discussion of oil spill trajectories, referencing a study made for the Western Oil and Gas Association in 1974. A number of conclusions are drawn about oil slick movement and impact upon coastal beaches and offshore islands without presentation of either tabular data or graphics. The information in that study warrants full public discussion and should be included in this impact statement. It could provide particularly valuable data to the National Weather Service, the U.S. Coast Guard and other public agencies having responsibilities to predict oil spill movements and to mobilize cleanup activities when a spill occurs.

(25) Page 174, paragraph 4. A lack of formal complaint regarding purse seining and oil platforms in the Gulf does not exclude the possibility that a problem may or could exist.

(26) Pages 251-252. In reference to impact on nekton, commercial and recreational fisheries, only on pages 251-2 is there a discussion of the artificial reef effect of oil platforms by which fish communities are established. As stated, this will very likely occur in Southern California. It is also stated that the fish forming these communities are attracted from the surrounding waters. This being the case, the impact from offshore oil exploitation as estimated in Volume II, Section III.E for commercial fisheries and Section III.I.5 for sport fisheries may be underestimated for the following two reasons:

1. Oil platforms concentrate fish populations at the site of a potential pollution source, increasing the potential damage.

2. Fishable concentrations of commercially valuable species are provided a sanctuary by oil platforms, i.e., some fraction of the fishable population is

> ㉖ temporarily unavailable to usual fishing gear. This has the potential of great impact on the jack mackerel fisheries at Cortez and Tanner Banks west of San Diego. This is presently a problem in Santa Barbara Channel.

These two points need to be addressed in the final environmental impact statement.

㉗ Page 437, paragraph 2. Evidence that six miles is an adequate safety barrier should be presented. Although a spill may not impact the pinniped breeding area, the possibility that the cleanup operations may do so should be discussed.

㉘ Page 497, paragraph 2, line 3. The comment that the "drafting and review of these (California coastal zone) plans will take several years in most cases; adoption and implementation of the plans may require several additional years" is misleading and incorrect. As pointed out below, the California Coastal Zone Commission intends to complete its coastal zone management program by the end of this calendar year and begin action to implement the program in FY 1976. The impact statement should at least consider the ongoing actions and proposed funding that this Commission has devised to date and should recognize the strong public commitment to coastal zone management in the state.

㉙ Page 500, paragraph 2, line 2. The state has indicated to the Office of Coastal Zone Management that it will seek approval of and funds for administration and implementation of its completed coastal zone management program within one year from now. This would not entail a delay "of at least two years" as indicated. Changing this time frame by a factor of two or more would seem to change greatly the significance of BLM's conclusions here.

Thank you for giving us an opportunity to provide these comments, which we hope will be of assistance to you. We would appreciate receiving two copies of the final statement.

Sincerely,

Sidney R Galler

92

Sidney R. Galler
Deputy Assistant Secretary
for Environmental Affairs

f. Department of Commerce (DOC)

Comments received dealt primarily with the biological portions of the DEIS, particularly fisheries. Other comments covered sections on oceanography, air quality, and the California Coastal Zone Conservation Commission (CCZCC).

Disposition

General Comments

(1) We have included a summary of proposed and ongoing baseline studies that BLM has initiated in Section I.D. There will be other special studies initiated to look into data gaps and problems uncovered by the baseline studies.

(2) Section III.F.2., Impact on Water Quality, has been substantially revised and expanded. Any potential conflicts with land use as a result of this proposal have been noted in Section III.J.1.

(3) On the basis of DOC and other review comments received concerning impacts on air quality, Section III.F.1. has been revised substantially utilizing information provided by EPA and the Air Pollution Control Districts for Los Angeles and Orange Counties.

Specific Comments

All of DOC's specific comments were responded to and corrections and additions made in the text except for the following which remain as unresolved issues or required additional explaination.

Volume I

(4) p. 80, line 7. Should read as in text except we changed "surface" to "level" as suggested. The sigma-t level is within the salinity range.

(5) p. 82, para. 1. The clarification has been made in the text. The 34.35 ppt maximum salinity refers to the water mass transported with the undercurrent from the south, or the Equatorial Transformed water mass.

(6) p. 98, paragraphs 1 and 2. The purpose of the literature survey presented is pointed out in paragraph three, as a summary of current information on phytoplankton in the Southern California Bight. The intention of paragraphs one and two is to indicate to the reader the problems involved in determining phytoplankton population paramenters so that the reader will not take the information presented as inflexible baseline data. Admittedly, gaps in knowledge exist and further studies are required, but a reivew of the literature and past studies is necessary to learn what is known and what needs to be studied. Hopefully, further field and laboratory studies will certainly add to the knowledge of the historical data base and gradually provide a more complete picture of the details and dynamics of the phytoplankton population.

(7) p. 106, para. 1, line 17. This is discussed in paragraphs one and two of this section.

(8) p. 124, para. 4. We agree that seasonal fluctuations cannot be accurately assessed from zooplankton populations in the Southern California Bight due to data gaps. Discussion of seasonal fluctuations in the text are limited and confined only to specific species and studies. The rough estimates of zooplankton volumes represent maximum and minimum averages over a 16-year period.

(9) p. 126, para. 1. The computer program developed by Seapy (1974) is an attempt to compile existing historical data for the Bight area in manageable form with the intention of adding more recent data as it becomes available. Although some of the data are old, to our knowledge, they are the best available at present.

(10) p. 145, 147, 148. Data gaps will always exist. The best assessment possible was made with existing information. We have emphasized the fact that in some areas more information is needed.

(11) p. 156, Figure II-60. Robert Bell of the California Department of Fish and Game (personal communication) has indicated that the figures give an accurate general overview of the kelp beds. An up to date comprehensive map of the kelp beds does not exist. Note, however, that the baseline study includes a detailed mapping of the kelp beds. See Section I.D.

(12) p. 208-232. To our knowledge, there are no more recent data available. If the DOC is aware of more recent data they should make these data available to us at the earliest possible

moment. The age of the data was taken into account in the impact analysis.

(13) p.275, para. 1. Sampling methods were not always the same and therefore, all the data are not comparable--which is why we carefully pointed out this shortcoming. That does not mean that the data are not useful for purposes of analysis.

(14) p. 286, para. 3. Additional information, as related, is desirable. The most accurate impact assessment possible was made with existing data.

(15) p. 289, para. 5. Once again, we have tried to provide an honest appraisal of the available information and pointed out gaps in the data.

(16) p. 322, para. 3. Sentence three rewritten to: "With the exception of a few areas, such as Santa Barbara, bottom fishes caught by commercial--"

(17) p. 323, para. 2. In our opinion, this information is supported by Frey (1971).

(18) p. 323, Section 3. A clarification has been made in the text. See Section II.E.4.

(19) p.323, Sentence 2. Stephens' (1972) analysis and the statement made in the text was based on catch per unit effort data. Although the catch of tuna has increased since 1936, the effort expended in catching the tuna has increased drastically resulting

in a lower catch per unit effort. Refer to Section II.E.4. for a clarification.

(20) p.340, para. 3. We consulted the DOC's National Marine Fisheries Service report and found the data to be essentially the same for marine mammals and endangered whales off Southern California. The most recent available information was used in the DEIS.

(21) p. 634, para. 2. We feel these data are valid representations of the facts.

(22) p. 651-653. The most up to date information on Fishing Vessels and Processing Plants has been included in the FEIS.

(23) p. 673, para. 2. The correction has been made: Hester, Frank J. 1974. The Living Marine Resources of Central and Southern California and Baja California. Prepared for the Western Oil and Gas Association.

As indicated in the text, this section points out that the primary foreign fishing effort in the area is south of the proposed lease area off Baja, California. Since most of the description concerns Baja, California fisheries, which will not be significantly affected by activity from the proposed lease sale we feel that the information provided is adequate.

Volume II

(24) p. 42, 43. Pertinent graphic and tabular data from independent investigators cited have been incorporated in the FEIS. Reference was made to the Intersea study where it was corroborative of the other investigator's findings. The entire study was not included in the DEIS because we had not reviewed the technical methodology utilized in the study, nor had we attempted to cooroborate all its findings through other investigators (see EPA comments relative to "Spill Trajectories"). A limited number of copies of the study are available from WOGA's Los Angeles Office.

(25) p. 174, para. 4. We agree that it does not exclude the possibility, but the lack of formal compliant by those involved (fishermen) indicates the problem is not considered by them to be severe enough to warrant a complaint.

(26) p. 251-2. We believe your comments regarding inaccessability would apply to commercial but not sport fish. The concept that platforms tend to concentrate fish populations near potential pollution sources and therefore makes the population more vulnerable to pollution is included in the FEIS. See Section III.E.

(27) p. 437, para. 2. This has been discussed in Section VIII.A.3.

(28) p. 497, para. 2, line 3. We have included the background of Proposition 20 and a summary of the preliminary draft California Coastal Plan policies in Section I.B. Refer also to

disposition two in response to the comments by the Resource Agency of California.

(29) p. 500, para. 2 line 2. The application for implementation grants within one year of course assumes that the California State legislature approves some form of State Coastal Zone Management Plan prior to that time. Refer also to the above response.

35-59

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
U.S. COAST GUARD(G-WEP-2/73)
400 SEVENTH STREET SW.
WASHINGTON, D.C. 20590
PHONE: 202-426-9573

5922/9.a
24 JAN 1975

Manager
Pacific Outer Continental
  Shelf Office
300 North Los Angeles Street
Los Angeles, California 90012

Dear Sir:

This is in response to Assistant Director Edwards' letter requesting review of the draft environmental impact statement for the proposed Outer Continental Shelf Oil and Gas General Lease Sale, offshore Southern California.

The Eleventh Coast Guard District Office in Long Beach, California, has reviewed the material submitted and they have the following comments to offer:

1. Required Content. The treatment of substantive issues in the draft statement is considered to be adequate. A full range of environmental impacts is explored, the advantages and disadvantages of the proposed action are "balanced," and reasonable alternatives to the project are discussed. It appears that the statement is sufficient to insure that environmental values receive equal consideration with economics and need in the decision-making process.

2. Specific Comments.

① a. The draft statement presents an excerpt from 33 CFR 209.135(b) on page 391, Volume II, that describes the Department of the Army's authority to govern shipping fairways in the Gulf in Mexico. Read in context, this section incorrectly implies that shipping fairways have been established co-extensive with the Southern California sea lanes.

② b. The statement does not acknowledge establishment on 1 January 1975 of the traffic separation scheme continuation extending south from Los Angeles/Long Beach. Information concerning this scheme was provided the Bureau of Land Management (BLM) in an Eleventh Coast Guard District letter dated 9 October 1974.

③ c. The draft statement does not discuss platform siting within the sea lane separation zones and makes no reference to the regulation of vessels engaged in lease development in the vicinity of the sea lanes.

(1) In the interest of promoting safe navigation and reducing the potential for loss of life and property at sea, leases should be issued by the BLM subject to the following conditions:

. Permanent platforms may not be located within one-quarter mile of sea lane boundaries. This stipulation is justified on two grounds. First, compliance with the Intergovernmental Maritime Consultative Organization's principles regarding ship routing schemes necessitates a navigation system that enables vessels to navigate with one-quarter mile accuracy when transiting sea lanes. Provision must be made for the mariner operating his vessel up to one-quarter mile outside of an established sea lane whose navigation equipment tells him that he is within the charted sea lane boundaries. Second, the one-quarter mile buffer zone will be necessary to ensure that servicing vessels and barges attendant to offshore platforms are kept outside of charted sea lanes;

③ . Vessels may not engage in drilling inside sea lanes or within one-quarter mile of established sea lane boundaries;

. Subject to the provision above, and except for vessels in direct transit, vessels engaged in lease development may not operate inside sea lanes, or within one-quarter mile of sea lane boundaries, or inside the precautionary zone, unless the express permission of the Coast Guard District Commander has been obtained. This lease provision will give the District Commander direct control over the number and position of work vessels in the sea lanes and precautionary zone to ensure that these vessels do not create unacceptable hazards to navigation;

. Vessels may not engage in drilling inside the precautionary zone except with the express permission of the District Commander;

. Subject to the first two provisions above, vessels engaged in drilling and permanent platforms will be permitted within the separation zones; and

. Vessels engaged in lease development anchored outside of the sea lanes may have no cables, anchors, buoys or other associated equipment in the sea lanes at a depth of less than 85 feet.

④ d. In regard to the creation of obstructions on the sea floor, Commandant Instruction 3264.2 requires that underwater completions with 85 feet or less water over them must be marked as required by the District Commander, Page 175 of Volume II should be amended accordingly.

⑤ e. Page 202, Volume II, states that, "established shipping lanes extend from Point Conception southerly to San Diego." This statement is not consistent with the information provided the BLM in the letter dated 9 October 1974.

Subj: Draft environmental impact statement concerning 1975 Outer Continental Shelf Oil and Gas General Lease Sale

⑥ f. "U.S. Coast Pilot, #7, Pacific Coast (1968)" and "Local Notice to Mariners" are incorrectly cited on Page 530, Volume I.

⑦ g. The section concerning "Oil Spill Contingency Plans" (page 380, Volume II) should be amplified to indicate that the Coast Guard has legal authority to contain or remove oil discharged from offshore facilities located within the 3 mile territorial sea and the contiguous zone. The Pollution Fund established under the Federal Water Pollution Control Act can be utilized for such removal actions from discharges from fixed structures or artificial islands located in the territorial sea or contiguous zone.

Sincerely,

W. R. Riedel

W. R. RIEDEL
Acting Deputy Chief, Office
of Marine Environment
and Systems
By direction of the Commandant

g. Department of Transportation-U.S. Coast Guard (USCG)

The Coast Guard submitted detailed comments and corrections concerning sea lanes and potential conflicts with OCS operations in San Pedro Bay as well as further information on jurisdiction over clean up of spilled oil within the 3 mile territorial sea and the contiguous area.

Disposition

(1) The clarification and correction has been made by referencing Federal Regulation (33 CFR Sec. 209.138(b), 1974), which is the shipping safety fairway in the Pacific Ocean at Port Hueneme, California.

(2) Since the traffic separation scheme does present an oil exploration and production problem, a meeting was held in Los Angeles on June 17, 1975 between the Corps of Engineers, U. S. Coast Guard, U. S. Geological Survey and the Bureau of Land Management to review the problem. As a result of this meeting, an investigation is being made to resolve the potential oil exploration and production/traffice separation scheme problem. The new sea lanes have been noted in Section III.G.

(3) The Coast Guard letter to the Bureau of Land Management, 3177, dated June 2, 1975 includes the six recommended regulations and the southbound sea lanes from Los Angeles/Long Beach Harbors.

Section IV.D. of the FEIS covers restrictions on structures in established sea lanes. As indicated above, the potential conflict in San Pedro Bay is being reviewed by all parties concerned for resolution of the potential conflict.

(4) The change in the Final EIS Section III.E. has been made in accordance with your recommendation.

(5) Since the southbound traffic separation scheme Los Angeles/Long Beach Harbor is still being reviewed, we have substituted "Point Fermen" for "San Diego" in Section III.G.

(6) The citation has been corrected in the text.

(7) Section IV.C. has been expanded and revised to include this authority.

15-54

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS
COMMANDER (mepps)
ELEVENTH COAST GUARD DISTRICT
HEARTWELL BLDG.
19 PINE AVE.
LONG BEACH, CALIF. 90802
Phone: 213-590-2301

3177
02 JUN 1975

Mr. William E. Grant
Pacific Outer Continental Shelf Office
Bureau of Land Management
300 North Los Angeles Street
7663 Federal Building
Los Angeles, California 90012

Dear Mr. Grant:

As I am sure you are aware, a traffic separation scheme was established in the Gulf of Santa Catalina on 1 January 1975. The traffic separation scheme consists of a northbound sea lane and a southbound sea lane with a two mile wide separation zone between the lanes. One of the primary purposes of the sea lanes is to provide vessels with a safe avenue of approach to and departure from Los Angeles and Long Beach Harbors. It is therefore considered most important that oil drilling and production operations in the vicinity of the sea lanes be restricted to some degree.

My purpose in writing is to advise you of the Coast Guard's position concerning the sea lanes and to ask that certain restrictions be included as conditions of lease for the affected parcels. Specifically, the following conditions are those which must be enforced in the interest of navigational safety:

a. That permanent platforms not be located within one-quarter mile of sea lane boundaries. This stipulation is justified on two grounds. First, compliance with the Inter-Governmental Maritime Consultative Organization's principles regarding ship routing schemes necessitates a navigation system that enables vessels to navigate with one-quarter mile accuracy when transiting sea lanes. Provision must be made for the mariner operating his vessel up to one-quarter mile outside of an established sea lane whose navigation equipment tells him that he is within the charted sea lane boundaries. Second, the one-quarter mile buffer zone will be necessary to ensure that servicing vessels and barges attendant to offshore platforms are kept outside of charted sea lanes;

b. That vessels not engage in drilling inside sea lanes or within one-quarter mile of established sea lane boundaries;

c. That subject to provision b. above, and except for vessels in direct transit, vessels engaged in lease development not operate

02 JUN 1975

inside sea lanes, or within one-quarter mile of sea lane boundaries, or inside the precautionary zone, unless the express permission of the District Commander has been obtained. This lease provision will give the District Commander direct control over the number and position of work vessels in the sea lanes and precautionary zone to ensure that these vessels do not create unacceptable hazards to navigation;

d. That vessels not engage in drilling inside the precautionary zone except with the express permission of the District Commander;

e. That subject to provisions a. and b. above, permanent platforms and vessels engaged in drilling be permitted within the separation zones; and

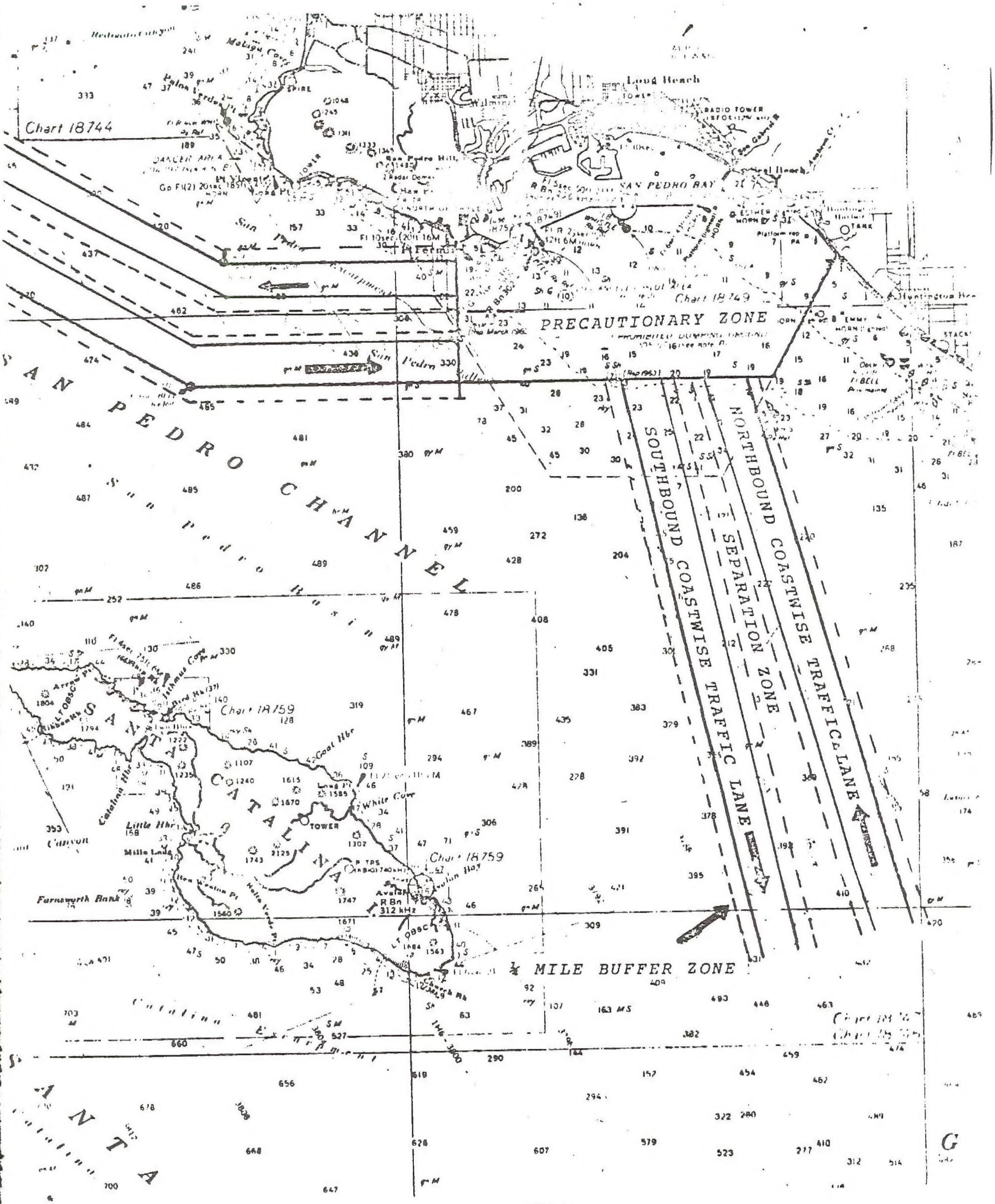
f. That vessels engaged in lease development anchored outside of the sea lanes have no cables, anchors, buoys or other associated equipment in the sea lanes at a depth of less than 85 feet.

It is felt that the foregoing restrictions are the minimum measures consistent with the Coast Guard's responsibility for the safety of vessels transiting the sea lanes.

Sincerely,

JOSEPH R. STEELE
Rear Admiral, U. S. Coast Guard
Commander, Eleventh Coast Guard District

Encl: (1) Gulf of Santa Catalina Traffic Separation Scheme



GULF OF SANTA CATALINA
TRAFFIC SEPARATION SCHEME

h. Department of Transportation-U.S. Coast Guard (USCG)

The U. S. Coast Guard has advised the Bureau of Land Management to include certain restrictions as a condition of the proposed lease sale for the traffic separation scheme that was established in the Gulf of Santa Catalina on January 1, 1975.

Disposition

Negotiations are currently underway which are considering possible modifications to ship traffic schemes and stipulations on certain lease blocks which will effectively mitigate any conflicts.

35-49

ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D. C. 20301

HEALTH AND
ENVIRONMENT

27 MAY 1975

Manager, Pacific Outer
Continental Shelf Office
300 North Los Angeles Street
Los Angeles, Calif. 90012

Dear Sir:

This is in response to request number 3301-C (732) for our comments on the draft environmental impact on the proposed sale of 297 tracts of submerged lands offshore southern California. We have reviewed the statement and find the proposed action to be in accord with agreements between the Department of Defense and the Department of Interior.

To provide complete information concerning the proposed leasing, we
do suggest that the Environmental Impact Statement state that success-
① ful exploration of the area will cause some dislocation of the Pacific
Missile Range and the Long Beach Electronic Testing area. This
relocation would cost between $18 and $21 million, of which $5 million
would be for military construction. We also recommend that the
② statement on page 211 about the impact of oil and gas operation be
clarified.

We appreciate the opportunity to review the statement and look forward to continual close cooperation between our Departments.

Sincerely,

George Marienthal

George Marienthal
Deputy Assistant Secretary of Defense
for Environmental Quality

i. Department of Defense (DOD)

The DOD submitted comments and provided additional information concerning relocation costs.

Disposition

(1) The relocation costs of the Pacific Missile Range and the Long Beach Electronic Testing area have been incorporated into the Final EIS. See Section III.H.

(2) The impact of oil and gas operations on military uses has been clarified. See Section III.H.

35-43

March 3, 1849

United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VIRGINIA 22092

OFFICE OF THE DIRECTOR

DES 75-8

JUN 5 1975

Memorandum

To: Manager, Bureau of Land Management
Pacific OCS Office, Los Angeles, California

Through: Deputy Assistant Secretary--Energy and Minerals Rolland V. Reed
JUN 9 - 1975

From: Director, Geological Survey

Subject: Review of draft environmental statement concerning a proposed Oil and Gas General Lease Sale Offshore Southern California (OCS Sale 35)

We have reviewed the subject draft environmental impact statement as requested and we offer the following comments.

A main thrust of this EIS is devoted to an attempt at precise forecasting of the number and type of oil spills and other disruptive impacts which will result if this sale is held.

The almost casual certainty with which these predictions are discussed is particularly disturbing. Rather than clearly define the range of possible impacts, the statement emphasizes the most negative possibilities, no matter how improbable their occurrence.

① The emphasis on spill and damage forecasting is a departure from previous site specific statements. We believe that this change in emphasis is unwise. Conditions in each OCS area are unique; comparable spill, damage, and other such data are not available from all areas -- unavailable from some; technology is continually improving; operating requirements are becoming more restrictive; and operators are showing more concern for their image and are making every effort to insure safe, clean operations. For these reasons, it is difficult to make spill and damage predictions that are realistic or meaningful. The statement

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

① should qualify the reliability of such estimates, in order that the public should not be misled. Further as stated in the draft impact statement for OCS Sale No. 38, "Uncertainty in the spatial and temporal distribution of the biotic communities in a particular area; and uncertainty about community and ecosystem dynamics all combine to prevent quantitative assessment of the ultimate impacts of spilled oil in a particular region (Corps of Engineers, 1974)... The probability of a large accidental spill represents an unknown factor." These points have guided the approach of the USGS in preparing the Santa Ynez and Santa Barbara statements, and we believe that the Department should be consistent with regard to accident and impact forecasting, and that this statement should be modified accordingly.

② We find that the impact statement neglects to mention the known presence of fresh-water aquifers offshore of Orange and Los Angeles Counties. Geophysical studies have shown that off Ventura County the post-Pliocene aquifers extend offshore in some areas for more than 10 miles.

③ A general reference to sea-water intrusion of fresh-water aquifers along the southern California coast should also be included. However, the strict enforcement of OCS Orders Nos. 2 and 3 should prevent any introduction of hydrocarbons or sea water into the fresh-water offshore aquifers as a result of drilling operations or well abandonment.

Since the precise need and locational requirements of any additional onshore oil treatment or storage facilities are not currently known, their effect on the watershed and water supply cannot be evaluated at this time. If such facilities are constructed, however, they will be subject to State or local zoning regulations and appropriate Federal, State, and local pollution standards.

Tsunamis with waves as much as 50 feet high have been mentioned near Gaviota early in Volume 1 (p. 37), but later in Volume 3 it is noted that such accounts are unsubstantiated and cannot be accepted at face value (p. 178, lines 3-4). It would be advisable to note the unreliability of that figure when it is first mentioned in the environmental statement.

④ On page 17 of Volume 2, some uncertainty is expressed as to the depth to which pipelines would require burial offshore. However, it has been positively stated on page 176 of the same volume that "pipelines within the corridors will be buried to a depth of three feet out to the 250 foot contour."

⑤ Although the potential hazard of landslides has been discussed briefly (vol. 3, p. 191-192), no specific mention was noted of hazards to facilities onshore required for development of the proposed leases, or of mitigative measures that may be required. For example, it might be advisable to note that landslides, mudflows, or deep creep would be local hazards to pipelines onshore. It seems likely that in this region there might be a local requirement for special construction measures, such as pipeline burial on land, for installation of special drainage facilities, and for special buttressing in problem areas such as in unstable slide masses, particularly in the Rincon and Monterey formations. We feel that this type of geologic hazard deserves emphasis in the environmental statement for this particular area because the three counties bordering the proposed lease sale (Orange, Los Angeles, and Ventura) appear to have experienced a higher concentration of historic earth and rock slumps than any other area of similar size in the United States.

Several recent publications pertinent to geologic hazards in Orange County, bordering the proposed lease sale in the San Pedro Bay, might be added to the bibliography on pages 205-211 in volume 3; all are published by the California Division of Mines and Geology as Preliminary or Special Reports:

(1) Fault Activity and Earthquake Epicenter Map, Photographic Reconnaissance Map of Major Landslides, and Geologic Map of Orange County, California, D. L. File: Preliminary Report 15, 1:48,000, 1973.

(2) Geology and Engineering Geologic Aspects of the south half of the Canada Gobernadora Quadrangle; Orange County, California: Special Report 111, 1974.

(3) Geology of the South Half of the El Toro Quadrangle, Orange County, California, D. L. File: Special Report 110, 1974.

(4) Geology and Engineering Geology Aspects of the San Juan Capistrano Quadrangle, Orange County, California: Special Report 112, 1974.

"May exist considerable resistance to beding or fracture" should probably be "may exhibit considerable resistance to bending or fracture" (vol. 1, p. 44, line 15). "Potential damage....may be shortened" should read "potential damage.... may be hastened" (vol. 2, p. 170, lines 6-7 from bottom). In the footnote to the tabulation on page 313 of Volume 2, "10% of the proposed 2,400 square mile oil lease area" should evidently read "910 square miles on the proposed 2,400 square mile oil lease area." The configuration of Orange County appears incorrect on figure I-1 (compare figure II-87).

⑥ Our specific, detailed comments have been transmitted directly to the task force under separate cover.

Our comments clarifying the hydrocarbon resource estimates to be used in the final statement will be addressed in a separate memorandum which will respond to your Director's memorandum of May 22, 1975.

Acting Director

j. U.S. Geological Survey (USGS)

USGS presented comments concerned with spill forecasts, the physical environment and geological hazards.

Disposition

All of the detailed comments and suggestions have been considered and incorporated in the appropriate sections of the EIS. More detailed responses to certain specific comments are included below.

(1) As noted by USGS, conditions are unique, but equipment and technology are similar or identical, as are operating procedures from area to area. Causal mechanisms of oil spills are therefore likely to be similar in all offshore operations, foreign or U. S. Performance is improving through technological advances, more restrictive operating prodecures and increasing operator concern for the environment. Even with such improvement, OCS hydrocarbon extraction is not failsafe. The purpose of an EIS is to identify potential environmental impacts attendant to a proposed project, and oil has been identified as creating adverse environmental impacts. While recognizing the many shortcomings in attempting to predict spill sequences and volumes, nevertheless we feel it is imcumbent upon us that the EIS attempt to quantify at least to orders of magnitude, the potential quantity of spillage. The spill section has been rewritten to correct some errors in the DEIS and has incorporated further discussion of the problems inherent in spill analysis.

(2) Section II.A has been expanded to note that freshwater aquifers do exist along the Southern California coast.

(3) We agree with the USGS comment that strict enforcement of OCS Order Nos. 2 and 3 should prevent contamination of existing offshore freshwater aquifers from activities resulting from the proposed lease sale. Potential damage from sea water intrusion to the aquifers could result from overdraft of the aquifers themselves from onshore or offshore pumping.

(4) The statement on p. 176 of Volume 2 has been changed to "Pipeline burial within the corridors may be required to a depth of three feet in water depths of 250 feet or deeper". As discussed in Section IV.D.2., each pipeline right-of-way application will be reviewed on a case by case basis by the Manager, Pacific OCS office.

(5) We agree with your comment on land slide in Southern California and have noted this in the text.

(6) We appreciated your detailed comments submitted informally by the task force and have considered them in the preparation of the FEIS.

ADDRESS ONLY THE DIRECTOR,
FISH AND WILDLIFE SERVICE

United States Department of the Interior

FISH AND WILDLIFE SERVICE
WASHINGTON, D.C. 20240

35-14

MAY 6 1975

Memorandum

To: Director, Bureau of Land Management

From: *Acting* Deputy Associate Director, Fish and Wildlife Service

Subject: Draft Environmental Statement Concerning a Proposed Oil and Gas General Lease Sale Offshore Southern California

We have reviewed the subject statement in accordance with Mr. Patton's February 21 memorandum and offer the following comments:

① The draft provides a rather comprehensive compilation of information currently available on biological resources of the Southern California OCS area. However, it sometimes fails to make sufficiently clear those areas where significant gaps in basic information exist. Inclusion (probably in an appendix to volume III) of the recommendations of the Southern California Academy of Sciences for baseline studies would substantially remedy this shortcoming. Additionally, some discussion of research and survey plans to overcome the information deficiencies would be desirable.

② The draft fails to adequately describe present limitations of existing oil spill containment equipment. More emphasis should be placed on shortcomings of this technology.

③ The information provided makes clear the necessity for providing a buffer zone around critical areas to protect them from oil spills and human disturbance. Alternative A (Volume II, pp. 437-441), provision of a 6-mile protection zone around all designated Areas of Special Biological Significance (ASBS) represents minimal precautions for protection of pinniped populations and other biological resources.

④ One potential problem brought to our attention is the interest of industry in the Channel Islands as sites for oil separation and storage facilities. We strongly oppose such totally inappropriate uses of unique ecological areas proposed for National Park status. In our view, oil pipelines should not be allowed near the shores of any of the designated ASBS's.

Following are specific comments:

Volume I

II. DESCRIPTION OF THE ENVIRONMENT

E. Biological Oceanography

1. Phytoplankton

P. 98, paragraph 3 -- In light of the near-impossibility of establishing good baseline data for phytoplankton (pointed out above on page 98), it is misleading to call this literature survey "baseline" information.

P. 123, paragraph 1 -- The second sentence should be modified to read, "no consistent change in species composition has been noticed".

5. Marine and Shore Birds

This section fails to describe pelagic bird species and existing knowledge of their distribution. It should also point out important gaps in knowledge of the offshore feeding areas of these marine birds.

6. Marine Mammals

The relative importance of the Southern California coast should be emphasized here. It is the most important segment of the Pacific coast of the Continental United States for pinnipeds, providing the major Pacific coast breeding grounds for this group.

P. 342, paragraph 1 -- The last two whales in the list (Gray whale and Minke whale) should be shown as plankton-feeders, not predators.

F. Important Marine Associated Habitats

1. Marshes, Bays and Estuaries

P. 383, paragraph 3 -- The last sentence should indicate that an agreement has now been reached turning Upper Newport Bay over to the State of California for establishment of an ecological reserve.

P. 385, paragraph 2, 2nd sentence -- These large expanses of shallow-water embayments, with small amounts of marsh and mudflat are still quite valuable as fish nursery and spawning habitat.

P. 387, paragraph 3, sentence 3 -- It would be helpful if some of the neritic animals referred to here were named. Certainly Anaheim Bay, Upper Newport Bay, Tijuana Estuary, and Mission Bay still serve as important nursery habitat for many shallow-water fishes. Some of these species are discussed on pages 422 and 423 of this EIS.

P. 394, paragraph 2, sentence 5 -- The statement that *Spartina* occurs from +1.0 to +1.5 m is of little value without a reference elevation. This sentence should be changed to read, "It occurs from about +1.0 to +1.5 m *above the elevation of mean lower low water*".

P. 404, paragraph 1, last sentence -- the word "now" should be changed to "not".

3. Channel Islands

c. Marine Flora and Fauna

⑤ This section should be greatly expanded, emphasizing the critical nature of the Channel Islands to marine mammal and seabird populations in Southern California.

e. Terrestrial Flora

⑥ P. 448, last paragraph -- It could be noted that *Pinus torreyana* as well as a great many of the plant species endemic to the Channel Islands are on the California Native Plant Society's (CNPS) list of rare and endangered species. Those species which are on this list could be indicated in the table of endemic plants in Appendix 10.

f. Terrestrial Fauna

P. 455, 2nd paragraph, 1st sentence -- The word "accessibility" should be changed to "inaccessibility".

P. 456 -- An additional reason should be added to the list summarizing the importance of the Channel Islands. - They provide the only major breeding areas for seabirds (not only the brown pelican) in California south of San Francisco.

6. Rare and Endangered Species

In its summary of the legislation concerning endangered species, this section should also include the Federal law -- The Endangered Species Act of 1973.

P. 493, paragraph 2 -- Although there is concern for preservation of habitat for the golden eagle, it is not considered to be an endangered species by the U. S. Fish and Wildlife Service.

G. Human Utilization

5. Commercial and Biological Resources

f. Shellfish

P. 655, last sentence -- The most important causes of the decline of lobster and abalone stocks should be discussed.

Volume II

III. ENVIRONMENTAL IMPACT OF PROPOSED SALE

⑦

A. General Environmental Impacts

1g. Placement of structures, pipeline burial cuts, ancillary onshore facilities, Page 9 -- This section should describe in much greater detail the projected onshore developments related to OCS exploitation. Probable increases in onshore storage facilities, and pipeline systems for transportation of oil after it comes ashore should be included in this description.

B. Impact on the Living Component of the Environment: An Introduction.

P. 51, paragraph 2 -- This paragraph and those following minimize the impacts of the Santa Barbara oil spill. However, the statement that "A study of the available information on potential effects of oil pollution reveals more unknowns than proven conclusions" (Appendix 18, this EIS), is certainly applicable to our knowledge of the Santa Barbara spill. Because of insufficient baseline information on biological resources prior to the spill, important impacts may have gone undetected.

P. 63, paragraph 1 -- While chrome lignosulfonate may be proven relatively harmless to pelagic species, it is likely that it is more damaging to benthic fauna which will be exposed to higher concentrations. Tests need to be made on benthic detritus and filter feeders to determine the effects of chrome lignosulfonate.

P. 65, 1st paragraph -- The effects of pipeline burial in wetlands will depend in part on the type of wetland involved. Burial in a tidal marsh could lead to long-term ecosystem modification caused by small changes in elevation.

C. Impact on Biota of the Open Bight Region

2. Impact on Benthic Marine Life

P. 101, paragraph 2, last sentence -- The reestablishment of mature kelp plants may take a good deal longer than two years since development can occur here only after sufficient time has elapsed for the development of beds of worm tubes or other objects for attachment.

P. 104, paragraph 2, sentence 6 -- The statement that recovery of soft-bottom benthic ecosystems will occur in a matter of days is overly optimistic.

3. Impact on Marine Mammals

⑧ P. 106, paragraph 1 -- The possibility that human activity on the OCS will lead to changes in the migration routes of the baleen whales should be discussed.

D. Impact on the Biological Communities of the Coastal Zone

⑨ Since the biological damage is not treated in section II, 1.7 ASBS, ecological reserves, and marine refuges should be listed under the appropriate ecosystem headings in this section. Impacts on particularly vulnerable resources in these critical areas should be specifically discussed here.

1. Bays, Estuaries and Marshes

⑩ P. 119, first sentence -- Much more information is needed on impacts of an oil spill on marshland benthos and marsh birds. The persistence of oil in marsh sediments and the period of time necessary for complete recovery of the ecosystem should be discussed in depth.

⑪ P. 120, next to last sentence -- It is not clear how an oil cleanup would be possible in a tidal marsh estuary such as Mugu Lagoon - oil would adhere tightly to marsh grasses and silty sediments.

4. Impact on Channel Islands

⑫ P. 148, paragraph 3 -- If there are actual plans for using the Channel Islands as supply staging areas and pipeline stations, such plans and the expected environmental impacts should be fully described. We believe that this use of the Channel Islands would be incompatible with their high biological and recreational values.

P. 151, 2nd sentence -- It could be noted here that native vegetation that would be lost includes many endemic species on the CNPS endangered list.

I. Impact on Recreational, Historical, Archeological, Aesthetic and Conservation Resources.

6. Impact on Endangered or threatened wildlife

P. 261, paragraph 1 -- Because the Island Fox gathers much of its food in the littoral zone, it could ingest significant amounts of oil following a spill. Thus, in addition to the very damaging effects of habitat loss, the Island Fox is likely to be affected more directly by OCS development.

J. Other Impacts

4. Offshore minerals

P. 314, last paragraph -- Change the word "anaerobic" to "aerobic".

K. Proximity Evaluation

⑬ Natural and Cultural Resources, p. 321 -- Should also include the category "Resting and Feeding Areas of Pelagic Birds" since these birds will be among the most seriously impacted during oil spills. Particularly vulnerable are diving seabirds including loons, grebes, cormorants and alcids.

P. 323, paragraph 4 -- Oil Spills

⑭ This section should describe the effects of ocean currents on oil spill movement.

L. Recapitulation of Proximity Evaluation

⑮ This section would be much more useful if, in addition to the locations given in Appendix 4, the lease tracts were numbered on graphic 1.

IV. MITIGATING MEASURES INCLUDED IN THE PROPOSED ACTION

C. Oil Spill Contingency Plans

3. Clean Seas, Incorporated-Inventory of Equipment

⑯ Pp. 382-383 -- It is improbable that either the 1000-foot boom or the 1,600-foot model would be effective in containing a large or even moderate-sized spill, covering many square miles of ocean. It should also be pointed out that this equipment would be practically useless during the period of time when waves exceed the 6-8 foot height off Southern California.

V. UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

B. Wetlands and Beaches

P. 414, sentence 2 -- It appears that hot water would cause more biological destruction than oil in this case.

VIII. ALTERNATIVES TO THE PROPOSED ACTION

⑰ A. Hold the sale in modified form

Another more restrictive alternative that follows logically from the discussion of impact potential on pp. 345-348 should be included here. That is the deletion of all 81 of the tracts considered by BLM to have highest impact potential.

1. Delete tracts for protection of Pinnipeds and ASBS Areas

As indicated at the beginning of this review, it is the conclusion of the Fish and Wildlife Service that this alternative represents the minimum permissible set of precautions for the protection of biological resources. It is essential that a 6-mile minimum protection zone be maintained around ASBS's to preserve these critical areas. Without such a zone, the ASBS's cannot be protected from even the majority of oil spills using existing technology; oil slicks would be able to reach shore before cleanup equipment could even be deployed (based on minimum response time of 12 hours).

⑱ P. 438, paragraph 4 -- This paragraph (and the next to the last paragraph on p. 439) give the impression that oil spills can be almost completely contained by existing technology. In actuality this is not the case - the percent effectiveness under actual ocean conditions should be stated here.

⑲ C. Delay Sale

Another alternative might be included here -- delaying the sale for 1-1/2 to 3-year period while minimal baseline studies are completed. A period of this length is more realistic than the suggested 10-25 years.

k. U.S. Fish and Wildlife Service (FWS)

The Fish and Wildlife Service submitted detailed comments concerning the areas of data gaps, oil spill containment limitations, buffer zones around critical areas and potential problems concerning the Channel Islands. All of the suggested changes, corrections and additions have been considered and included in the text in the appropriate sections. The following responses address comments where we feel additional explanation is necessary.

Disposition

(1) The recommendations of the Southern California Academy of Sciences for baseline studies in the Southern California Bight provided an important step in developing the baseline study initiated by BLM and summarized in Section I.D. The document of recommendations is 258 pages long and has not been attached to the statement, but copies are available at the Pacific OCS Office, Bureau of Land Management, Los Angeles.

(2) The section on oil spill equipment and technology has been revised. See Section IV.C. The limitations of new technology advances have been discussed in Section VIII.C.1.

(3) We agree that these sensitive areas should be protected and have proposed alternatives to provide buffer zones around these areas. See Section VIII.A.

(4) We support the FWS in opposing the potential use of the Channel Islands as sites for oil separation and storage facilities. We urge the offshore petroleum industry to consider other areas for the location of these facilities.

(5) Section II.F.3.d. A more detailed description of the marine flora and fauna of the Channel Islands area is covered in Sections II.E.1. through 6. The marine species of the islands are similar to those of the mainland but are generally in a less disturbed state.

(6) Section II.F.3. p. 448, last paragraph. The California Native Plant Society's classification of endangered plant species is pointed out as suggested.

(7) Section III.A.1.g. p. 9. See expanded discussion of onshore facilities in Sections I.D. and III.J.2.

(8) Section III.C.3. p. 106, para. 1. The impact on cetacean species has been expanded in Section III.C.3.

(9) Section III.D. Biological impacts on resources in the Areas of Special Biological Significance, ecological reserves and marine refuges have been delineated more fully in Section III.I.5.

(10) Section III.D.1. p. 119. For a discussion of oil spill impacts on marshland birds, see Section III.D.3. Impacts on endangered or threatened wildlife in marshes are covered in Section III.D.7. This Section (III.D.1.) has been expanded to include more references on impacts on marshland vegetation and benthos, in addition to these impacts covered and expanded in Section III.D.2. We have also included a discussion of oil persistance in marsh sediments and biological recovery times as suggested.

(11) Section III.D.1. p. 120. It is true that complete clean up of an oil spill in a marsh estuary would be very difficult and biologically destructive. The discussion in the text has been expanded

to emphasize this. A better strategy is to try to prevent spilled oil from entering estuaries, and this has been addressed in Section IV.E.4.a., Special Stipulations.

(12) Section III.D.4. p. 148, para. 3. Channel Island development was considered in a report published by Western Oil and Gas Association (1974), but development is not anticipated at this time. Impacts of such possible development have been expanded and are discussed in Sections III.D.4. and V.B. We agree that using the Channel Islands for onshore facilities as a result of this proposal sale would be incompatible with their high biological and recreational values.

(13) Section III.K. p. 321. Resting and feeding areas of many truly pelagic species of birds are not stationary due to currents and movements of schools of fish, etc. upon which they feed. Therefore, due to the mobile nature of these areas a specific rating is not feasible. However, the potential impacts on pelagic birds is discussed in Section II.D.3. of the FEIS.

(14) Section III.K. p. 323, para. 4. Oil spills. This is discussed in Volume II, Section III.A.2.f.

(15) Section III.L. Graphic 15 has been added which has the tracts numbered and the impact potentials indicated.

(16) Section IV.C.3. p. 382-382. This Section has been revised and expanded in the FEIS. On p. 381, Volume II of the Draft EIS, it is pointed out that "to date, the best boom performance that has been reported (EXXON) is containment in 6-to 8-foot seas with 20-mile winds and 1.25-mile currents... Presently there is no known

method of containment or cleanup which is effective in turbulent seas where wave heights exceed ten feet." See also the response from the Dames and Moore comment on oil spill containment in Section IX.B.5.a.

(17) Section VIII.A. Deletion of all 81 tracts considered to have highest impact potential is considered by the alternatives to withdraw six miles around pinniped rookeries and Areas of Special Significance. An alternative is also considered for subsea completions for tracts ten nautical miles from the shoreline of the Santa Monica Bay and San pedro Bay tracts. See Section VIII.A.

(18) Section VIII.A.1. p. 438, para. 4. Oil containment technology is discussed in Section IV.C.1. of Volume II. Refer also to Section IV.E.4.a. for a special stipulation on cleanup capability and response.

(19) Section VIII.C. Minimum baseline studies of two to three year duration are more realistic and have been initiated already by the Bureau of Land Management. See Section I.D. for a summary of the baseline research in progress and to be considered. This alternative is considered in Section VIII.C.2.

35-4

OFFICE OF THE DIRECTOR

March 3, 1849

United States Department of the Interior

BUREAU OF MINES
WASHINGTON, D.C. ~~20240~~ 20241

May 7, 1975

Memorandum

To: Manager, Pacific OCS Office, Bureau of Land Management, Los Angeles, California

Through: Deputy Assistant Secretary--Energy and Minerals

MAY 14 1975

From: Director, Bureau of Mines

Subject: Draft environmental statement, Bureau of Land Management, Proposed 1975 Outer Continental Shelf Oil and Gas General Lease Sale Offshore Southern California, OCS Sale No. 35

The subject four-volume draft environmental statement prepared by the Bureau of Land Management has been reviewed by our Western Field Operation Center, Spokane. Because much of the material is repetitive of that reviewed in statements concerning other Outer Continental Shelf oil and gas leasing proposals, our review is limited to the potential impact on other offshore mineral resources.

This Federal action proposes the leasing of 297 tracts of 1.55 million acres offshore Southern California beyond the 3-mile limit. Potential recoverable reserves within the proposed lease range from about 1.6 to 2.7 billion barrels of oil and 2.4 to 4.8 trillion cubic feet of natural gas.

① Known offshore mineral resources that could be affected are phosphorite and manganese nodules, sand and gravel, barite, and glauconite. The statement includes a short discussion on phosphorite and manganese nodules, and sand and gravel. The context of the narrative concerning phosphorite grade versus commercial recovery indicates a selection of pessimistic references leading to the conclusion that the deposits are uneconomical to mine. Yet the same authors (Sorensen and Mead, 1969) state, "Despite many programs by Government agencies and private firms to accomplish exhaustive seafloor sampling, we know little about the quality and quantity of phosphorite lying off our coast. Such results emphasize the paucity of our knowledge of even these long-known ocean deposits and the need for extensive exploration." Even less sampling has been done for manganese, barite and glauconite. This disparity should at least be reported. Similarly, not enough factual data are available to make the statement in Volume 2, page 311, that "the economical value of minerals in the Borderland does not warrant retrieval." A more accurate statement would be that present resource data and seafloor mineral retrieval technology is lacking for a complete economic analysis.

Memo. to Manager, Pacific OCS Office, Bureau of Land Management, Los Angeles, California, Subj: Proposed 1975 Outer Continental Shelf Oil and Gas General Lease Sale Offshore Southern California, OCS Sale No. 35

The long-term need for new sources of phosphate and the recent price
increases in phosphate fertilizers could further stimulate exploration and
recovery research of seabed deposits. Because leasing of the offshore tracts
② will prohibit exploration and mining of any seafloor minerals for 20 to
40 years in 28 to 48 percent of the project area (Volume 2, pages 312 and
313) perhaps more consideration should be given to accommodating concurrent
exploration and recovery of both oil and gas and the other minerals,
③ 43 CFR 3307.4-5 notwithstanding. Incidentally, should not the "(4000 foot
either side pipeline)" on page 312 be "(400 foot either side of pipeline)?"

Thomas V. Falkie
Director

1. Bureau of Mines

Comments from the Bureau of Mines concerned the accuracy of the discussion of other offshore mineral resources and their relation to concurrent oil and gas operations.

Disposition

(1) Section II.A.5.a. This section has been updated to indicate a more complete economic analysis. Balite and glauconite minerals have been included. Section III.J.4.p. 311. The recommended change has been made in the text.

(2) p. 312-13. The discussion of concurrent exploration and recovery of both oil and gas and other minerals has been expanded.

(3) Refer to Section II.A.5. A range of values is given for hazardous corridor areas. The original value was 4000 not 400.

35-13

United States Department of the Interior
NATIONAL PARK SERVICE
WESTERN REGION
450 GOLDEN GATE AVENUE. BOX 36063
SAN FRANCISCO, CALIFORNIA 94102

IN REPLY REFER TO:
L7619
(WR)PSE

May 6, 1975

To: Manager, Bureau of Land Management, Los Angeles, California

From: Associate Regional Director, Professional Services, Western Region, National Park Service

Subject: Draft Environmental Statement concerning a Proposed Oil and Gas General Lease Sale Offshore Southern California (DES 75-8)

We have reviewed the draft environmental statement and offer the following comments for your consideration.

COMMENTS ON THE PROPOSAL

① We are concerned that the proposed action is in such close proximity to Channel Islands National Monument and Santa Rosa and Santa Cruz Islands which, as discussed in the statement, are presently being considered for addition to the National Park System.

② We are also concerned that there is the possibility that oil spills can occur under conditions where containment of the crude oil may not be possible. The consequences of an oil spill are covered adequately as far as investigations warrant. However with the potential for an accident of significant size, we feel that the coating of the shoreline in crude oil, adversely affecting recreational use, killing birds, mammals, and marine and intertidal organisms, is an immense risk to the coastal environment and directly conflicts with the principle of preservation upon which the National Park Service was founded.

The effects of the large number of petroleum hydrocarbons in crude oil upon fish and wildlife, particularly upon endangered and rare species are not fully known and present investigations are inconclusive. The damage to organisms from continuous low-level exposure to hydrocarbons

AMERICAN REVOLUTION BICENTENNIAL 1776-1976 has not been thoroughly investigated and until investigations are conclusive the effects of the project can not adequately be evaluated.

② It appears that despite all preventive measures that may presently be implemented, the spills, though reduced in number, continue to occur. According to the statement, statistical evidence indicates that several spills over 50 bbl. will occur if the sale is made. With increased shipping traffic in the area, use of pipelines and the risk of blowouts, the accident potential appears great.

③ The tracts under consideration could, if developed, have a tremendous visual impact from Santa Barbara and the other islands despite platform beautification efforts.

With all of the direct and potential impacts of the project considered, we recommend that this sale be delayed until such technology and conclusive scientific information exist so that the benefits of this project may not carry such a large cost to our environment.

COMMENTS ON THE STATEMENT

④ We recommend that all coastal and marine floor properties where surface disturbance is likely to occur be surveyed by a competent, professional archeologist. Data obtained during surveys should be submitted in a written description format meeting professional standards and any cultural resources should be evaluated in terms of the criteria outlined in Title 36, CFR 800.10. If these criteria are met, the resources should be nominated to the National Register of Historic Places, and compliance with Title 36, CFR 800.4 should be documented.

Volume I

Page 603, Lines 6-8

Change to read "The Santa Barbara and Channel Islands areas were inhabited by the historic Chumash and their prehistoric antecedents the Canalino, as archeologists have called them. The Los Angeles-Orange County areas were occupied by the Gabrielino and similar peoples. The Chumash were skilled tool and basket makers......"

Page 604, Line 10

Change to read "Although some excavations and reconnaissance projects have been accomplished on the islands, there is no thorough understanding of native use of any of the Channel Islands and most data are inadequate."

Page 605, Line 10

Change to read "....interest and others may possess significance not yet evaluated."

Page 605

Add "The National Register of Historic Places lists no places on the islands and there are no places in the nomination process. Existing data regarding the historical and archeological significance of known locations is sparse and until further study is accomplished, information is inadequate for nomination."

Volume II

Pages 400-401

Change "qualified marine archeologist" to "professionally qualified marine archeologist."

Volume IV

Graphic No. 2

⑤ A known shipwreck is noted for T35N, R39W, within a tract to be included in the leased areas (Graphic No. 1) but no Executive Order 11593 discussion relative to the evaluation or inventory of this known resource is made. The "Winfields Scott" shipwreck should be shown immediately north of Middle Anacapa Island.

Graphic No. 9

The California sea lion and Northern elephant seal should be shown at Anacapa Island.

Graphic No. 10

Both Anacapa and Santa Barbara Islands should be shown having "rocky shores".

Bruce M. Kilgore

Bruce M. Kilgore

m. National Park Service

The comments from the National Park Service expressed the following comments:

(1) The proposed tracts are in close proximity to Channel Islands National Monument, Santa Rosa and Santa Cruz Islands.

(2) The impact of oil spills on wildlife, rare and endangered species and the recreational shoreline.

(3) The visual impact of platforms around the Channel Islands.

(4) That all coastal and marine floor properties where surface disturbance is likely to occur be surveyed by a competent, professional archeologist.

(5) That no Executive Order 11593 discussion is made on a shipwreck on Graphic 2. in San Pedro Bay. All of the detailed comments and corrections have been included in the text except as noted below.

Disposition

(1) While it is true that the proposal is in close proximity to some of the islands, the alternative section presents certain possibilities to mitigate potential impacts. Section VIII. A. 3. proposes an additional three mile buffer zone around the pinniped and sea bird rookeries of Santa Barbara Island and San Miguel Island. Section VIII. A. 4. proposes a three-quarter mile or three mile buffer zone around the areas of special biological significance

surrounding the Channel Islands. Anacapa Island is not near a proposed lease area.

(2) An oil spill does present a threat to wildlife. The subject is thoroughly discussed in Sections III. B-E. The establishment of buffer zones around the most sensitive areas provides added protection by giving a greater time frame for the containment of a spill. Refer also to the alternative in Section VIII. C.

(3) Platforms will have a visual impact on the Channel Islands. If additional buffer zones as proposed in Section VIII. A. are established, the impact will be reduced by the siting of the platforms several miles from shore. The State of California has jurisdiction of the waters up to three miles off the islands. If an additional three mile buffer zone is established, then a six mile distance would separate the islands from the platforms, thus greatly reducing the impact.

(4) Refer to Section IV. E. 4. a., Special Stipulations.

(5) The comments mention two specific offshore archeological sites. The "Winfields Scott" shipwreck north of Anacapa Island is not in or near the proposed lease area, and therefore is not shown on Graphic No. 1. The wreck at T35N, R38W is listed on a National Ocean Survey chart and is listed as a navigation hazard. Therefore it is shown on Graphic No. 2 as a potential conflict.

35-52

March 3, 1849

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF OUTDOOR RECREATION
PACIFIC SOUTHWEST REGIONAL OFFICE
BOX 36062
450 GOLDEN GATE AVENUE
SAN FRANCISCO, CALIFORNIA 94102

IN REPLY REFER TO:

E3035
(DES 75-8)

May 30, 1975

Memorandum

To: Manager, Pacific Outer Continental Shelf Office, Bureau of Land Management

From: Regional Director

Subject: Draft environmental statement concerning a Proposed 1975 Outer Continental Shelf Oil and Gas General Lease Sale Offshore Southern California (OCS Sale No. 35)

We have reviewed the subject document and find that although an enormous amount of information is presented, the draft EIS is deficient in assessing indirect recreational and aesthetic impacts, and in its evaluation of alternatives to the proposed action.

① The draft EIS displays a notable lack of analysis of indirect and external recreation impacts, particularly to alternative recreation sites and inland areas. For example, on page 212 of volume 2 it is stated that "Any loss in opportunity for one resource such as a beach defiled by oil, will likely be made up by persons seeking alternative recreation elsewhere, such as going to another beach, going hiking in the mountains, or any of the other numerous options. While this represents no net loss to society in terms of foregone opportunity, it does create a loss due to the increased crowding occasioned at the alternative activities selected, and thus may be a depreciation of quality for those alternatives." This statement fails to take into account that many alternative recreation sites, e.g. Torrey Pines State Reserve, San Gorgonio Wilderness, etc., have established carrying capacities which are not allowed to be exceeded. It is also extremely unlikely that tourists and residents will choose to travel into the hot interior and mountain areas for recreation when cool beaches are unusable during the summer months. Further, the discussion does not consider that tourists are generally unfamiliar with the inland recreation resources of southern California. It is largely the seashore and a very limited number of "name" recreation resources, not primarily "any of numerous other [recreation] options" which brought them from the eastern states. It may be expected that tourist-derived income at least in coastal communities may decrease as a result of environmental degradation. Further, the translocation of those residents familiar with alternative regional recreation opportunities could be expected to consume an amount of fuel in transit to such alternative sites equal or greater than normal (after discovering their particular beach destination despoiled). The immediate result would be a decrease in ambient air quality with effects to be described later. It may also be expected that in addition to the stated possible "depreciation of quality" at alternative recreation sites due to overcrowding, that a decrease in quality of resource, and perhaps even the viability of those alternative resources will be jeopardized.

① The suggestion that potential beach users simply utilize alternative recreation resources is predicated upon the assumption that alternative resources are available for more intense use. Unfortunately a true surplus of such desirable resources does not exist because the close proximity to the Los Angeles metropolitan complex has presented very real deficiencies of outdoor recreation availability. The 1974 California Outdoor Recreation Resources Plan (CORRP), for example, has determined that planning district 8, containing the counties of Ventura, Los Angeles, Orange, San Bernardino and Riverside, although containing the State's greatest existing supply of camping units, picnic tables, boat access sites, and riding-hiking trails, also had the greatest 1970 deficiency of all these facilities, and that the deficiencies are expected to increase dramatically by 1980 and 1990 (page 165).

Forest Service personnel in Los Padres National Forest, the largest publicly-owned parcel within one hour of the lease area, have identified an existing need for additional recreation facilities but because of budgetary considerations there are no immediate plans for construction or development of such facilities in the area surrounding the lease site.

The draft EIS itself, on page 566 of volume 2, describes recreation potential in Los Angeles County (and Angeles National Forest) by stating that ". . . available resources are largely inadequate. Demand for day use facilities is particularly acute." The CORRP also states that the district as a whole is faced with "The combination of population densities and intense commercial and residential

① development within these metropolitan areas [which] has created an acute shortage of neighborhood and community recreation opportunities" (page 165). The CORRP continues by stating that "Most of the metropolitan areas are also deficient in regional parks. The proximity of U.S. Forest Service lands to the metropolitan centers places this agency in the role of providing regional day-use areas. The U.S. Forest Service has not traditionally provided metropolitan recreation opportunities and is not well prepared to do so. The problem of high fire hazards causes some of the U.S. Forest Service lands closest to the cities to be closed to public use for much of the year" (page 165). This closure takes place during the dry season, which coincides largely with peak beach use. It is therefore unclear to us where a large number of people are to go and what they are to do in the event of the inevitable spill.

The draft EIS clearly identifies direct impacts to coastal resources and population. Because of the magnitude of expected impacts to recreation, a recapitulation is in order. As stated, the projected impacts of lightering (into barges) losses will result in losses put at 58,765 visitor days (valued at $248,576) on "the heaviest used beaches in the state" (volume 2, page 221). Clean up operations, particularly the use of detergents and steam may be more harmful than the spilled petroleum. Subsequent clean up operations may destroy intertidal life and eliminate the possibility of sea life observation and study by thousands of students, tourists, and residents. The stated clean-up time of 1-60 days (volume 2, page 223) will of course have an exclusionary effect upon recreation for that indeterminate period of time, and perhaps longer, depending upon the level of clean up success. ② The draft EIS claims losses as a result of the 1969 Santa Barbara spill at 744,000 beach visits and $3,150,000 (volume 2, page 225). Direct economic costs are thoroughly presented in the document, but the overall impact of decreased long-term desirability of California beaches has not been established. The statement indicates that "Fourteen percent of Southern California's 8.5 million out-of-state visitors indicated beach or coastal visits were part of their itinerary," and that therefore "some portion of 1,190,000 people would be affected by an oil spill" (volume 2, page 224). Assuming that at least half of those people would go elsewhere if major spills occurred at 7 to 10-year intervals during a 60-year production period, then 3.6 to 5.1 million out-of-state visitors in that period of time would spend their money elsewhere. The more frequent but lower magnitude spills (volume 2, page 409) would probably add significantly to that visitor loss. Loss of recreation potential to resident users would far surpass this figure. Depending upon the spill magnitude, longevity and meterological conditions, the impact would be more or less local in nature, as would be economic impacts.

Pages 322-323 and the table on page 339 indicate that 162 tracts are potentially capable of spilling 1000 or more barrels of oil (42,000 gallons or more) onto coastal areas of significant recreation resources, suggesting the magnitude of impact to such resources. Further, 106 structures would be located on these tracts "within an intensive use area" for boating, fishing, etc., thereby jeopardizing the quality, if not the viability, of those recreation uses.

③ The draft EIS apparently fails to consider the potential damage occurring as a result of spillage from both oil tanker transport and OCS exploitation and transport. The cumulative accidental discharge into coastal waters by the next decade or two, particularly by Very Large Crude Carriers (VLCC) carrying Indonesian and Alaskan oil, could be greater than either the proposed extraction or transport alone, and can be expected to produce proportionately greater environmental and economic damage to coastal resources and communities. Because of this omission, the "oil spill issue" for coastal areas is being clouded, and cannot be made clear until a cumulative analysis of probable total spills and the associated impacts and benefits is conducted and presented.

④ The draft EIS states that "If an oil spill impacts upon a sandy beach, then a condition will result which may last from weeks to several years or more . . . . The probability of a spill reaching a sandy beach within the area is approximately 80% . . ." (volume 2, page 413). The draft EIS continues with "The size of the beach affected can vary from less than a mile to over 70 miles depending upon conditions in the area at the time. Heavily contaminated beaches will be rendered unsuitable for recreation so long as they remain contaminated with oil" (volume 2, page 413). Total losses of tourist/recreation dollars can therefore be expected to be many tens, if not hundreds of millions of dollars. Further, "If mechanical means are employed in beach cleanup operations (bulldozers, front end loaders and other earth moving equipment) as was done following the Santa Barbara and Arrow oil spill incidents, then shoreline equilibrium may be upset by beach removal. Excessive removal of beach materials can lead to erosional problems unless enough sand and gravel, for example, are available to replace the removed beach materials" (page 413). A loss of sandy beaches for recreation might therefore be expected as a result of clean up operations from the "inevitable" spill.

⑤ In summary the potential direct impacts of the lease sale are greater than the draft EIS would indicate. In order to provide an accurate assessment of both projected direct and indirect impacts as well as project benefits, we suggest that the final EIS include a single "summary" table containing benefits and impacts of the proposed lease and all included alternatives.

⑥ In volume 2, page 415, third paragraph, the statement regarding production and entry of gaseous hydrocarbons, oxides of nitrogen, etc. into the atmosphere as a result of spills (and subsequent combustion) which states that effects would be "a nuisance and . . . harmful only to the extent of soiling when settling to the ground" is questionable. Likewise the statement that only "local air quality would be degraded" does not represent the real impact upon non-local resources. Serious effects can be expected to occur to human beings, forest trees, rubber and plastic articles, etc. downwind from such spills. Graphic No. 5, "Air Basin Winds and Vegetation," as well as other sources clearly show that prevailing westerly wind will generally transport this air pollution across the Los Angeles Basin, the most heavily populated area in the state, and potentially affect 10 million persons. The air pollution will then crest over the San Bernardino and nearby mountain ranges where additional damage can be expected to occur to the San Bernardino National Forest which by 1969 had already experienced 46,230 acres of "heavy" and 53,920 acres of "moderate" damage of 160,950 acres of Ponderosa-Jeffrey pine forest as a result of photochemical oxidant damage generated in the Los Angeles Basin. (Oxidant Air Pollutant Effects on a Western Coniferous Forest Ecosystem, Task B Report, University of California, Riverside, pages A-24.)

It is imperative in this discussion to note that (1) San Bernardino National Forest is managed for recreation; (2) straight-line projection of tree losses, assuming static conditions (including population and vehicle miles travelled) suggest a potential total loss of Ponderosa-Jeffrey pine forests by ca 2020; and (3) damage decreases with distance across the forest, probably as a joint result of oxidant uptake by vegetation and aerial dispersal. The impact of a denuded or dead "forest" upon forest recreation and aesthetics is obvious.

⑦ In the discussion on pages 424-425 of volume 2, "Interference with Recreational Activities," a clarification or reassessment of the terms "temporary" and "disruptive" is warranted, particularly in view of the statement on page 413 that spills on sandy (recreation) beaches may persist for several years or more, and also with respect to the exclusion of coastal recreation in waters and on beaches coated with petroleum.

⑧ Temporary overcrowding of alternative facilities is discussed, but impacts of overcrowding on resources (e.g. increased vandalism) are not discussed.

⑨ In volume 2, page 425, it is stated that "The presence of offshore oil structures will also enhance the recreational fishing potential." It should be noted that only a select user group will be able to

⑨ take advantage of this opportunity, and then only if fishing vessels are allowed (or willing) to navigate within close proximity to the drilling structures. In addition, on page 426 it is indicated that sportsfish catch following the Santa Barbara spill was only 10 percent of the catch during comparable six-month periods. Therefore any statements regarding potential net gain in fishing potential is questionable. On page 427 it is stated that "Closure of harbors to prevent oil incursion could result in prevention or restriction of boat use for periods of three weeks or more." A loss of 12,000 boating days is not improbable from such events. On page 440 the draft EIS mentions that ". . . a large 100,000 bbl spill will not be completely contained by present methods." Such size spills are not uncommon from VLCC, a fact not considered in the draft EIS regarding cumulative impacts.

⑩ On page 456 the alternative of energy conservation could result in a savings of 2.2 million barrels of oil per day by 1985 which, calculated over the life of the proposed lease exploitation, would be greater than the amount of petroleum available in the proposed lease area. The draft EIS does not make this fact clear, and therefore minimizes the viability of this form of "no project" alternative.

On page 458 the alternative of conventional oil and gas supplies does not mention the Elk Hills Naval Reserve which we understand could be brought to a production level of 300,000 barrels a day by 1976. Currently private firms are depleting the reserve by extraction immediately outside the reserve boundaries, thereby reducing the future viability of the reserve for government use. The production of this amount would satisfy the necessary non-OCS production substitute mentioned on page 458 without the magnitude and importance of impacts implied in the discussion. A bill to open the Elk Hills Reserve to full production has been jointly proposed by both U.S. Senators from California. We would expect that the impact upon recreation from extraction from Elk Hills would be minimal, thereby making this alternative source more desirable from our jurisdiction.

Nowhere in the draft EIS is a relative comparison of benefits and impacts of alternative oil production schemes developed. Such a comparison would be most readily usable if presented in the form of a matrix. We suggest such a comparison be included in the final EIS in order to allow for an independent evaluation of alternative project consequences.

⑪ On page 526 of volume 2, Alternative E--"Alternative within the Proposed Action--Government Exploratory Drilling Prior to Leasing" would be desirable in that it would allow the government independently to assess the value and potential of OCS lands prior to lease actions. With comprehensive records of resource quality and availability, the Federal government could best assess areas and schedules most suitable for exploitation based upon need as well as develop the expertise required for development of Federal petroleum reserves.

Frank Sylvester

Frank E. Sylvester

n. Bureau of Outdoor Recreation (BOR)

The Bureau of Outdoor Recreation submitted several detailed comments concerning deficiencies in assessing indirect recreational and aesthetic impacts and in evaluating alternatives to the proposed action.

Disposition

(1) It is noted in Vol. I, DES p. 590, that attendance is limited at Torrey Pines. We have only considered direct impacts on coastal and offshore recreation resources. Secondary and indirect impacts on regional recreation resources have been inferred by the statement found in Vol. I, DES p. 541, "Recreation options exist although most opportunities are fully exploited, thus there is no surplus of any particular facility. Dislocation in one recreation type cannot be readily absorbed elsewhere as a result. Regional recreation supplies will then materially affect (and be affected by) coastal recreation pressures." Parens - added.

An oil spill of "significant" size will not affect the entire Southern California coastline, nor likely even an entire county's coastline, therefore, we feel that shifts in recreation will occur as occurred during the Santa Barbara spill. Local people may go to a more distant beach or to an alternative type of recreation, while tourists, if drawn across the country by the lure of a Southern California beach, will surely move up or down the coast to find an unaffected beach. Of more importance, is the persistant, low-level pollution which will reach the beaches from small spillages. An increase in tar balls over that which presently exists, will certainly cause a depreciation in the attractivess of the beaches. Particular areas may be more heavily affected than others due to concentration and transport by currents and tourist income may drop somewhat for these areas. We do not intend to leave the impression that an oil spill is dealt with, recreationally, by simply crossing the road from the beach to go to the golf course. Adverse impacts will assuredly accrue and the ripple of increased attendance will be felt at recreation sites up to hundreds of miles distant, particularly if the event happens during the high use summer months. Direct losses of recreation opportunity will be suffered by those whose sole recreational desires are ocean oriented (such as surfers) and who can't afford the time or expense of traveling to a more distant area. Increased travel by others will undoubtedly increase air pollutants by a small percentage and thus may exacerbate the vegetation damage problem. Most of this travel will occur on weekends, however, when business and commuter traffic is lower, thus the added impact to air pollutants will be less of a problem than it potentially might be.

(2) See note one answer for tourist discussion. Local visitor losses might be significant, but we have no comparable data base to apply to the proposed situation to determine the magnitude of the loss, if any. On the other hand, observations of

visitor attendance at beaches in other parts of the country suggest that recreational pressures are satisfied at many very poor quality resources, suggesting that quality depreciation will be the greatest loss suffered rather than visitation when recreation pressures are high.

(3) The EIS discusses existing water quality in the Southern California Bight and analyzes oil spill quantities expectable from this proposal if implemented. While we do not feel it is within the responsibility of this statement to exhaustively analyze all sources of environmental impact which potentially may occur aside from this proposal, we have discussed the interaction of crude carriers from Alaska and Indonesia in Section III.A.2.

(4) The probability statement is misleading and has been corrected in the FES. It is based upon the fact that 80% of the coast is classified as having sandy beaches therefore, a spill which reaches shore will have a probability of 0.80 of reaching a sandy beach. The length of beach affected should have been 48 miles, not 70 miles as indicated in the DES and has been corrected.

As indicated in Vol. II, Section III.I.1., tourism losses in the Santa Barbara spill were $3,150,000. Similar to higher losses would result if the event were repeated. An incident of this type occurring in Santa Monica Bay during the high use season would cause losses vastly exceeding those of Santa Barbara, remembering that the latter event transpired during the winter when an unusually stormy period was extant. Beach equilibrium is a major problem presently in many parts of the coast due to flood control projects which retain sediments which used to nourish beaches. Massive removal of sand to clean up oil could aggravate the situation if the sand was not replaced.

(5) While no plus and minus sheet covering the entire document has been made, an individual analysis of impacts as they are specific to the various subareas has been made in Section VIII.A.1.

(6) Reactive hydrocarbons from spills and oxides of nitrogen from fires will add only small increments to the existing air pollution loads and then, only at randomly spaced intervals. If such an event coincided with a heavy pollution incident, then the combined effect would be to accelerate vegetation damage. However, we do not foresee events from this proposal as contributing in a significant (measurable) way to the unfortunate but accelerating demise of San Bernardino National Forest, ponderosa-Jeffrey pine forests.

(7) "Temporary" as used in this instance, refers to a time span of a few days to 6 months or so. "Disruptive" means noisome enough to attract attention and detract from one's enjoyment, but not bad enough to totally destroy the recreational experience or drive the majority of visitors away.

(8) Overcrowding can increase the incidence of vandalism and result in other effects such as increased soil compaction and consequent damage to vegetation. Activities and their results, ensuing from this proposal may add to these deleterious effects.

(9) We do not expect an increase in fishing success comparable to that which occurred in the Gulf of Mexico, in the Southern California OCS. In the Gulf, hard substrates (reefs) are largely missing, while fairly common in California. Additionally, extensive kelp beds form reef-like shelter on the west coast, therefore, oil rigs will not greatly increase the reef environments like they do in the Gulf of Mexico. At least some of the platforms currently installed on the California OCS, display signs prohibiting approach closer than 200 feet. If this practice is continued, then fishing benefits will be minimal although there are a large number of boats in the Southern California Bight capable of fishing around platforms in most of the areas proposed for sale.

VLCC's are economical only for long distance transportation of petroleum hydrocarbons and we do not anticipate their utilization in this proposal. Therefore, we have not considered them in this document as far as spill analysis although transportation of oil into Southern California from extra-regional sources will undoubtedly result in increased petroleum hydrocarbons in the area's marine environment.

(10) Project Independence's proclaimed goal is reduction of America's reliance on insecure foreign energy supplies. Currently, we import 3 to 4 million barrels per day and with declining domestic production, (without considering even nominal demand increases) it is evident that both severe conservation measures and increases in domestic production are necessary to deal with the short-term supply situation until longer term alternatives can be brought on stream. The opening of Elk Hills would aid in reducing foreign oil dependency, also, and would undoubtedly have a greatly lessened effect on recreation resources than OCS development. It would not, by itself, be adequate to free the U.S. from foreign oil, though.

Alternative oil production from shale is discussed. Other alternative production increases involve both increased recovery from existing fields, through use of secondary and tertiary recovery techniques and development of, as yet, undiscovered or unproven fields. Increased recovery at existing fields would not generally involve large additional increments in environmental impacts. In some cases, water flooding could create demands on local water supplies, exhaust emissions from steam heaters could impact air quality and damage from explosive reservoir fracturing could result. Some instances of wildlife losses, particularly waterfowl, have been noted in California due to produced water disposal ponds. The discovery of new fields in any number is unlikely and an assessment of their environmental impact would be difficult until their location and reserves are better known.

(11) This alternative is being considered.

2. STATE AGENCIES

35-46

CLAIRE T. DEDRICK
[redacted]
SECRETARY

EDMUND G. BROWN JR.
[redacted]
GOVERNOR OF
CALIFORNIA

OFFICE OF THE SECRETARY
RESOURCES BUILDING
1416 NINTH STREET
95814

Department of Conservation
Department of Fish and Game
Department of Navigation and
Ocean Development
Department of Parks and Recreation
Department of Water Resources

Air Resources Board
Colorado River Board
San Francisco Bay Conservation and
Development Commission
Solid Waste Management Board
State Lands Commission
State Reclamation Board
State Water Resources Control Board
Regional Water Quality Control Boards

THE RESOURCES AGENCY OF CALIFORNIA
SACRAMENTO, CALIFORNIA

MAY 23 1975

Mr. Mile Carter
U. S. Department of the Interior
Bureau of Land Management
300 North Los Angeles Street
Los Angeles, California 90012

Dear Mr. Carter:

The State of California has reviewed the "Draft Environmental Statement, Proposed 1975 Outer Continental Shelf Oil and Gas General Lease Sale, Offshore Southern California, OCS Sale No. 35", which was submitted to the Office of Planning and Research (State Clearinghouse) in the Governor's Office in accordance with Part II of the U. S. Office of Management and Budget Circular A-95 and the National Environmental Policy Act of 1969.

The State's review was coordinated with the Departments of Commerce, Conservation, Fish and Game, Food and Agriculture, Health, Navigation and Ocean Development, Parks and Recreation, Transportation, and Water Resources; the Air Resources Board; the California Coastal Zone Conservation Commission; the Colorado River Board of California; The Reclamation Board; the Solid Waste Management Board; the State Water Resources Control Board; the Public Utilities Commission; and the Energy Resources Conservation and Development Commission.

The State believes that the Department of the Interior should delay the proposed leasing of 1.6 million acres off the coast of Southern California until a number of conditions are met, and then only proceed in a manner far different than what has been perceived to date.

① Chief among these conditions is a more meaningful relationship between the federal government and state and local governments. The California Resources Agency has seen little evidence of this relationship to date. Without it little can be done since we all share an interest in the offshore area and some regulatory powers controlling its use.

② The draft environmental impact statement prepared by the Bureau of Land Management has an 11-page section dealing with California's oil and natural gas supply and demand. Needless to say, this is a key section of the total 2,000-page comment. It is designed to justify the need for more offshore oil and natural gas. This section starts out citing a January 1973, Resources Agency report, titled "Energy in California". The BLM's impact statement relates, "The State of California report was prepared in January 1973 prior to the energy crunch. This report as noted, basically agrees with the report completed in the private sector after the energy shortage". The private sector report, which is referred to, was the one done for Western Oil and Gas Association in 1974 by Sherman H. Clark Associates. It is the report which the oil industry and this impact statement prepared by the federal government rely on most heavily for justifying the need of this sale. The impact statement goes on to state that both reports agree "but it is not known if the state report is still considered valid by the Resources Agency". To answer this question, we would state most emphatically that this 1973 report is no longer considered valid. A further consideration, which the impact statement does not address itself to, is that the Resources Agency has gone out of the energy forecasting business and the new State Energy Resources Conservation and Development Commission, with a clear mandate for energy conservation, has gone into it.

③ We also believe that the sale should be delayed until the environmental baseline studies are completed for lease area. The first contract for those studies was awarded last month by the Bureau of Land Management. This bird and mammal study, to be done by the University of California at Santa Cruz and Irvine, will not be completed for one year. The general oceanographic study contract has yet to be awarded. These leases are scheduled to be sold this summer.

A document, entitled "Bureau of Land Management Outer Continental Shelf (OCS) Environmental Studies Program", with the seal of the Department of the Interior on its cover, clearly states, "Objectives: Provide information about OCS environment that will enable the Department and the Bureau to make sound management decisions regarding the development of mineral resources". How can those decisions be made without this needed information?

④ In addition to meeting other conditions set forth herein, the State would like to see the exploration phase separated from the development phase with strong federal, state and local review at every step of the way. Another condition that the State would like to see met is the formation of a clear, meaningful national

MAY 2 3 1975

energy policy that adequately considers energy conservation measures and alternate energy sources. Along with other offshore oil areas and different energy sources, this policy must show the need for oil and gas off the coast of Southern California. It should also show if there is a national need for this oil, there would be the means for shipping it east which do not exist at this time. ⑤

⑥ Landslides, both submarine and onshore, were not considered in the section of the E.I.S. on Geologic Hazards. This subject should be discussed in the report and an estimate of maximum credible earthquake and associated ground motion should be made for the offshore sites.

Additional Comments:

Water Quality

⑦ The lease sale and the ensuing development will inevitably generate some water pollution. The EIS should provide the best available predictions of expected pollution levels under different conditions of development to permit the State to determine if the predicted pollution levels are acceptable and to recommend a position for the State to take.

Fish and Wildlife

⑧ The proposed lease and development could have unacceptable detrimental impacts on fish and wildlife resources. The provisions indicated in the specific comments on this area of concern should be included as conditions to the lease and approval of the lease sale.

Solid Waste

⑨ The oil spill contingency plan should include provisions for the disposal of oil-contaminated wastes generated by a major oil spill and for the necessary cleanup operations. The plan should identify potential disposal sites and evaluate the impact of these wastes on the identified disposal facilities. These waste management considerations should be correlated with the local agencies responsible for solid waste management in the affected areas.

We also recommend that adequate measures be developed for the proper disposal of solid wastes, such as construction wastes and garbage generated during construction and use of facilities. These measures should be coordinated with local agencies responsible for solid waste management.

Air Pollution

⑩ The discussion of the effect of oil production and treatment associated with this project on air quality (Volume 2, p. 183

et seq.) is inadequate to support the conclusion there will be no adverse impact on air quality. Onshore installations always have some pollutant emissions which may or may not have a significant adverse impact. Emissions from offshore installations under some meteorological conditions may be transported to the shore where they will impact on the air quality.

Only by an adequate analysis of the cumulative effects of all the treatment installations can a conclusion about the adverse impact of the project on air quality be reached. We realize the difficulty at this preliminary stage for such an analysis; however, some estimates need to be made.

⑩ Estimates have been made of the effect on ambient air quality of the shore installations proposed by Atlantic Richfield for their proposed increase in production from platform Holley and by the USGS for Exxon's proposed development of the Santa Ynez tract. These estimates appear reasonable in the light of present day technology.

The EIS needs to be improved by an approximation, based on present or foreseeable technology, of the quantities of oil and gas to be treated in onshore facilities and the probable location of these facilities. Analyses of the possible effect of the emissions from these facilities on the ambient air quality, using the most applicable modeling techniques, should be prepared and due attention given to possible cumulative effects of these future installations including those proposed by Atlantic Richfield and Exxon.

We recommend that the EIS be amended eliminating the claims of no adverse impact, adding the analysis discussed above, and incorporating a statement that the effect of any installation on air quality will be analyzed in detail for each installation and presented in the future EIS's for these installations.

Energy Resources Conservation and Development

Proposals for development of outer continental shelf resources must be an integral part of and be reviewed in light of a comprehensive, balanced energy policy, reflecting not merely the proposed uses for offshore oil and gas, but also a consideration of measures and prospects for development of environmentally safe alternative sources of energy and vigorous conservation action based on cost effective improvements of end use efficiencies. The policy that finally emerges should be truly national in scope and developed and implemented in partnership with the states. Full and early opportunity for the public review and comment should be afforded as these policies emerge and evolve.

The continental shelf is a great, nonrenewable public resource which should be managed with scrupulous care to ensure the long-term productivity of all its resources. There is a public interest in prompt exploration of the OCS to determine the extent and location of energy resources that exist. However, this exploration program should be separated from the decision to develop and commercially produce these resources, pending full evaluation of both the benefits and risks associated with development and production.

In summary, the following points should be considered:

⑪ 1. The DES treats the environmental impacts of the proposed project primarily in the aggregate, while the most significant impacts could in fact be localized in areas such as Santa Monica and San Pedro Bays. The methodology for such analysis exists and has been previously applied in similar cases, notably in the CEQ Report to the President, "OCS Oil and Gas - An Environmental Assessment" (US G.P.O. 1974). The "proximity analysis" on a tract-by-tract basis is merely a starting point for such an assessment.

⑫ 2. The discussion in general fails to take into account the additive effects of other proposed and/or likely developments, including increased tanker traffic due to crude import from Alaska; LNG tanker and terminal operations; deepwater port proposals, and the cumulative impacts of these and other energy-related production and transportation activities. Particularly with regard to onshore impacts such as increased crude distribution requirements and pipeline corridors, the draft statement does not provide a systematic, comprehensive analysis.

⑬ 3. The draft statement does not adequately consider the implications of oil and gas development in water depths considerably greater than in any existing producing fields: The average water depth of tracts in Santa Monica and San Pedro Bays is over 1,400 feet with the average tract between 5 and 6 miles from shore.

⑭ 4. In the discussion of mitigating measures, the draft statement does not evidence any intention to ensure consistency of OCS-related development with the State's coastal zone management plan, which is available in draft form.

⑮ 5. This draft statement, like the draft programmatic statement which preceded it, does not address the fundamental question of an objective relative ranking of the environmental risks and benefits of OCS development in the various

MAY 23 1975

⑮ areas being considered for leasing nationwide. The decision-making matrix displayed in the draft (Vol. 2, p. 504) shows no analytically based relative ranking for Southern California, due to the regrettable fact that the offshore California areas were not part of the CEQ impact assessment. The Department's assignment of a "2" ranking (on a scale of 1 to 3), with 2 representing a "moderate" level of environmental risk, is not convincing.

⑯ 6. "No single tract (or set of tracts) could be considered as typical or representative of the entire area." (Vol. 3, p. 141). Therefore, the draft statement should be supplemented by thorough study for each of the five distinct areas proposed for leasing.

Given below is a more detailed discussion of the above points:

1. Localization of Impacts

Environmental impacts of the proposed DOI program would be localized and not necessarily aggregated. For example, it could be more meaningful to talk about the localized impacts of a portion of the program centered in Santa Monica Bay, than to treat in the aggregate the total impacts of the 1.6-million-acre lease offering.

⑰ In the quantification of impacts from spills, for example, we are not dealing with a total amount of spillage uniformly distributed over the total area. Most chronic small spillage occurs on and around platforms and tankers in transfer and loading operations. The initial geographical distribution of these spills would have a definite relation to the density of development, the nature of operations in various sectors, and the sequence of development. The dispersion and trajectory of spills would then be determined by wind, wave, and current action. The result could be that total impacts on water quality in confined areas such as Santa Monica Bay would in fact be much greater than the aggregate data would lead us to believe.

The likelihood that total water quality impacts in Santa Monica and San Pedro Bays would go beyond the levels considered in the aggregate program is increased if one considers that 30-60 percent of the recoverable reserves in the proposed leasing area are estimated by the DOI to be in Santa Monica and San Pedro Bay areas. Furthermore, the lowest water depths, which make for the most economical drilling operations and platform investments, are closest to shore within both of these areas. The impacts on beaches and recreation due to deterioration of water quality in Santa Monica Bay could be very severe. The statement notes (Vol. 2, p. 191) that "areas in which drilling (and pipeline construction and burial) will resuspend polluted materials (areas in which sanitary, industrial and ocean dumping disposal material has accumulated) could have an irreversible impact on the marine aquatic environment." Later on in the same Volume 2 (p. 409), there is the further statement that "the most highly polluted areas include major portions of Santa Monica Bay, Palos Verdes Peninsula, San Pedro Bay and Newport Beach ... or those areas closest to the lease areas in Santa Monica Bay and San Pedro Harbor." Further study of the water quality problems in these areas is essential. Even on the basis of incomplete analysis, the conclusions of the draft regarding water quality are negative and strong enough to support a request for deletion of the Santa Monica Bay and San Pedro Bay tracts (Vol. 2, p. 198).

⑰ The recommendation to delete tracts in Santa Monica Bay is further supported by the conclusion (Vol. 2, p. 439) that at an oil spill velocity of 1 mile per hour (equivalent to 5 percent of the speed of a 20 mph wind), "every area except Santa Cruz Island (Santa Rosa-Cortes North Area) would be in danger of being oiled if the spill occurred four miles from shore." At a distance of 4 miles, a spill under such conditions would reach shore within 5.7 to 4 hours. Under ideal conditions, minimum spill response time could be as low as 5-7 hours (Vol. 2, p. 439). Yet the minimum practical response time necessary for oil spill constraint and cleanup measures to prevent adverse impact in high hazard potential areas is given on page 344 of Volume 2 as 12 hours.

⑱ The Draft EIS relies heavily upon a "proximity analysis" which essentially asks, "How near is the proposed activity to a variety of other locations, activities, or resources?" The single measure of proximity may be of some value in relation to questions such as visibility and aesthetics, but it does not allow for other important, and quantifiable, factors including air and water circulation within confined areas, the effects of water depth and bottom conditions on the technology and sequence of development, the probable distribution of resources, operational activities of various kinds (e.g. transfer operations), and specific impacts including chronic operational discharges of formation waters, chronic small spills, and large accidental spills.

These are not marginal or arcane scientific issues--they are fundamental questions which could be answered in a competent and thorough approach. Indeed, the CEQ impact assessment specifically addressed many of these issues with regard to Atlantic and Alaskan OCS development. Unfortunately, the CEQ study did not cover the California offshore areas and these questions have not been adequately examined in the DRAFT EIS.

MAY 2 3 1975

Those portions of the draft addressing risk potential on a tract-by-tract basis do succeed in raising substantial doubt as to the acceptability of the leasing programs presently proposed. Thirty-one of 60 tracts in Cortes North are rated as having relatively high hazard, disruption and aesthetic degradation; 9 of 32 tracts in the Santa Barbara Island-Santa Catalina area, 19 of 56 in the San Pedro Bay area, and 22 of 56 in the Santa Monica Bay area are similarly ranked. Eighty-one of 297 tracts have high potential for all three types of impacts (Vol. 2, pp. 330-348). Fifty-four of 297 tracts should be withdrawn to allow a 6-mile buffer zone from areas of special biological significance (ABSS) in the intertidal areas.

2. OCS Alternatives and Cumulative Effects

There is general agreement among independent analysts that the West Coast will face an oil surplus with the arrival of Alaskan oil in quantity beginning in 1977 or 1978. The national role of OCS oil is to displace imports. Imports generally arrive by tanker and thus represent, barrel-for-barrel, a greater environmental hazard than offshore development and transportation of OCS oil by pipeline. Therefore, one can argue that on environmental grounds, the alternatives to OCS development are probably as hazardous, or worse, than OCS.

⑲ However, the California situation may be different. Prior to the point at which the State could have significant new offshore production, "imported" oil will already be arriving via tanker from Alaska. And even with successful OCS development, it is likely that the Alaskan oil would continue to come into California for transshipment and eventual pipeline transport to the Gulf of Mexico refining and distribution centers. In short, California will probably have significant additional tanker traffic with or without offshore development.

This is significant in two respects; first, it weakens the case for going ahead with new offshore development on the grounds that it is a "lesser of two evils"--evidently, we are going to have to deal with increased tankers anyway; second, any new environmental loads relating to offshore development must be considered in conjunction with the loads to be imposed due to additional tanker traffic and operations stemming from the inflow of Alaskan crude.

Finally, development of new offshore fields in Southern California waters could further increase tanker and barge traffic and transfer operations if oil is found in water depths exceeding the limits imposed by present pipeline

MAY 2 3 1975

technology. The average water depth of all tracts offered in Santa Monica Bay is more than 1,400 feet (Vol. 3, Appendix 4, pp. 10-18). Of all tracts in the proposed offering 64.1 percent are located in 250 meters (820 feet) or more water depth. "Santa Rosa-Cortes South involves tracts separated from land by water depths exceeding 550m (1,800 feet) and in some cases, by over 900m (3,000 feet). These depths are in excess of current pipeline technologic capability and, thus, indicate a reliance on barging or tankering for at least a portion of this production." (Vol. 2, p. 29). "Deep intervening basins and current technology requires that any pipelines from Outer Banks lease areas be routed northward along the Santa Rosa-Cortes ridge to the Northern Channel Islands, then easterly along the island shelf to land in the Oxnard-Ventura area." (Vol. 2, p. 221).

3. Technology and Water Depth

The deepest platform offshore Louisiana is in 373 feet of water. Exxon is building a 950-foot platform, the world's largest, for placement in 850 feet of water in the Santa Barbara Channel.

⑳ Of 36 tracts offered for lease in Santa Monica Bay, 23, or about two-thirds, are five miles or less from shore. Yet the average depth for all tracts are in waters with depth greater than 300 meters, or about 1,000 feet. Twenty of 36 are 439 meters, or about 1,440 feet.

In San Pedro Bay, 36 of 56 tracts have depths of 300 meters or more, with an average depth of 436 meters, or 1,430 feet. Off the Channel Islands area, 41 of 90 tracts are over 300 meters with an average of 416 meters, or 1,365 feet. Both the costs and the technological difficulty of underwater drilling, platform, and pipeline construction and maintenance operations increase exponentially as water depth increases. The development of these deepwater OCS areas may, therefore, be unusually challenging and hazardous.

4. Consistency with the Coastal Zone Management Plan

㉑ It is difficult to understand why the extensive work done by the State and regional coastline commissions has not been included in this impact statement. As we understand it, these planning documents have been informally provided to the Department of the Interior. We understand that except for a meeting last fall, when the draft EIS had already been sent to Washington, D.C., there has been little or no contact with this state agency which is vitally interested in any offshore activity that would eventually have to come ashore. There is no mention in the EIS of the material made available to the BLM by the coastal commissions or of any future role the commission might have in relation to offshore oil drilling.

The commission's coastal plan, which will include an energy element, will be submitted to the Legislature in 1976. The commission's work has been partially funded by the federal Coastal Zone Management Act.

㉑ We see no reason for the federal government to proceed with the lease sale until the coastline plan is adopted by the State Legislature, hopefully sometime in 1976.

In the 36-page discussion of mitigating measures (Vol. 2, pp. 368-404), there is no mention of adherence to the provisions of the California Coastal Zone Management Plan. The draft version of the energy element of this plan has been available for several months, and the preliminary overall plan was published in March 1975. Yet the draft environmental statement niether reflects the principles set forth in the applicable sections of the plan, nor does it endorse in concept the principle of consistency, which in our interpretation is legally required under the Intergovernmental Cooperation Act of 1968.

5. Environmental Ranking

㉒ Environmental ranking of the proposed Southern California lease sale relative to other lease sale areas is sketchy and incomplete. If this draft is to fulfill its decision-making function, then environmental risks must be systematically weighed against probable benefits. The inadequacy of the draft in this regard is illustrated by the discussion of oil and gas supply and demand (Vol. 2, pp. 300ff) wherein a 1973 pre-energy crisis Resources Agency, State of California, document is cited (Energy in California), followed by the statement (p. 304) that "it is not known if the state report is still considered valid by the 'Resources Agency'."

With regard to the likely economic benefits of the proposed lease sale to be weighed against the environmental impacts described in the draft, the range of estimates given for each of the five lease areas does not provide a sufficient technical basis for independent evaluation of the nature, extent, and location of oil and gas resources.

Conclusions

A. The DES is not adequate.

B. The DES needs to be supplemented by detailed study of the environmental risks of each of the five major areas, particularly with regard to cumulative effects on water quality.

C. The DES needs to be supplemented by an integrated analysis that considers fully and systematically the cumulative environmental impacts of offshore production with offshore production with other energy-related offshore, coastal zone, and onshore production and transportation activities currently proposed or likely to occur in the same time frame.

D. Further evaluation is needed of deepwater production and pipeline transportation technology.

E. The Federal Government should make a commitment to the State regarding more extensive State participation in the OCS decision-making process particularly with respect to the coastal zone plan.

F. The Energy Resources Conservation and Development Commission has requested detailed resource information from the Department of the Interior in order to develop an independent assessment of the likely economic benefits to be weighed against the environmental impacts described in the draft.

G. The Department of the Interior should not proceed with the OCS lease sale until these and other issues have been resolved.

Thank you for the opportunity to review and comment on this Statement.

Sincerely,

CLAIRE T. DEDRICK
Secretary for Resources

By Paul L. Clifton

Attachment
cc: Director of Management Systems
State Clearinghouse
Office of Planning and Research
1400 Tenth Street
Sacramento, California 95814
(SCH No. 74030452)

Specific Comments on the
Draft Environmental Statement
Proposed 1975 Outer Continental Shelf Oil and Gas General Lease Sale, Offshore
Southern California OCS Sale No. 35

These comments on the specific areas of concern are an integral part of the State's comments.

Water Quality

The following comments identify certain areas of discussion which require further development to contribute to a thoroughly informed decision.

㉓

1. Relationship of this EIS to an earlier draft EIS on Proposed Increase to 10 Million Acres for Oil and Gas Leasing on the Outercontinental Shelf (DES 74-90) SCH 74112556.

   Volume 1, page 23, of the draft EIS refers to an earlier EIS which received comments in December 1974. Several of those comments can be applied to the draft EIS for OCS Sale No. 35 and will be repeated here. The comments on the earlier EIS questioned whether the schedule and pace of an accelerated leasing program might preclude adequate environmental analysis of proposed actions. The draft EIS for OCS Sale No. 35 does not show awareness of all comments submitted for the earlier document. The final EIS for OCS Sale No. 35 and for any other sites should take account of comments on earlier documents in this series.

2. Environmental impact of proceeding with the proposed leasing program from the point of view of an agency authorized to develop and enforce environmental standards.

   The draft EIS for OCS Sale No. 35 represents a significant advance in quality over the preceding draft EIS referred to above. The principal deficiencies of the present EIS concern secondary impacts, relationship of this action to other proposed actions forming part of the lease sale program, mitigation measures, and alternative actions.

㉔

   a. Secondary Impacts

      Pages 14 and 15 of Volume 1 identify potential increased refinery construction and increased use of existing onshore facilities, which can be expected to produce increased impacts on water quality. These secondary impacts should be considered in the final EIS. Particular attention should be given to the possible effects of refinery wastes in identified areas of high environmental value and sensitivity.

㉕

   b. Relationship of proposed sale to other actions

      Discussions of environmental impacts, alternatives, and mitigation measures should be extended to include the combined effect of OCS Sale No. 35, the three additional sales proposed for 1976, 1977, and 1978 in Southern California (OCS Sales 44, 48, and 53; Vol.3, p. 9), the proposed 1978 Northern California Sale (OCS Sale 57, Vol. 3, p. 9), and proposed increases in imports to the area via pipelines and deep-draft tankers. The National Environmental Policy Act and California Environmental Quality Act clearly require consideration of the cumulative impact of a series of proposed related projects.

c. Mitigation measures

(1) Disposal of formation waters and associated soluble and entrained hydrocarbons.

㉖ This EIS does not consider action alternatives that might result from improved technology or modifications of existing practices; instead, these actions are included under the heading of "unavoidable impacts". Certain of these activities, such as the direct discharge of formation waters, lend themselves to alternative approaches, such as pipeline transport to shorebased treatment and discharge facilities. Because formation water discharge is likely to be one of the most significant impacts and because so little is presently known about it, such alternatives should be pursued.

Consideration should be given to the use of diffuser manifolds to provide dilution of formation waters discharged directly from platforms, and the on-site treatment, using best available technology, of formation water before discharge.

(2) Probability of interference with oil spill cleanup activities and discussion of oil spill damage prevention techniques.

In the section on mitigating measures, there is a distinct lack of oil spill effects prevention, but rather descriptions of control methodology and the current "fire station" approach toward oil spills. Mitigating measures should include a discussion of in-place oil containment schemes, i.e., permanent booms around production platforms. This becomes critical as areas farther from land are developed and response/travel times get longer.

㉗ Discussions of the effectiveness of oil spill cleanup techniques should be modified to include descriptions of the relative success of different techniques under varying sea states, the probability of coincidence of a spill and sea states unfavorable to cleanup activities, the effects of rough seas and storm conditions on mixing of spills, submergence of dispersed oil, and modification of predicted impacts of such a spill. The discussion should include modifications of effective response times to spill alerts, as well as mechanical interference with cleanup activities. Descriptions of a series of representative conditions taken from the full range of expected conditions should be provided, rather than a single example drawn from one extreme of the range.

d. Alternative actions providing for protection of areas of special biological significance and pinniped haul-outs and rookeries.

Pages 437 to 442 of Volume 2 provide a cursory description of a modification of the proposed sale, which would provide partial protection to pinnipeds and areas of special biological significance (ASBS). The description of the proposed alternative is inadequate and contains at least one major defect. The guidelines of the Council on Environmental Quality prescribe that discussions of alternatives should provide comparative evaluation of the environmental benefits, costs, and risks between the proposed action and the alternatives. Such a discussion should be supplied.

Page 438, Volume 2, states that the control exercised by the State Water Resources Control Board over ASBS does not apply to offshore oil and gas activities outside the three-mile limit.

Activities that serve as sources of waste discharges entering an ASBS can be compelled to establish monitoring programs and to make modification as to reduce the waste effluent to below detectable limits.

Also on page 438 it is claimed that capability to contain spills is sufficient to avoid the need to withdraw parcels from sale in the vicinity of ASBS. Nothing in the discussion suggests that spill containment capacity will be adequate to prevent pollution of ASBS, and the first paragraph of page 440 indicates that the authors of the EIS do not expect to be able to protect ASBS from pollution.

(28)

Waste discharges are not permitted in ASBS. The EIS concludes that there is a statistical chance for an oil spill on any well drilled and describes the impact of such a spill. Therefore, we believe that the EIS should address itself to the total exclusion of possible spills or detectable pollution from ASBS. The proposed five- and six-mile ASBS protection zones are based on assumed travel times required for cleanup gear to reach the site of a spill. It appears that calm weather travel times for the cleanup gear are being compared with rough weather times for spill transport. The discussion should be expanded to indicate realistic estimates for travel time, deployment, and completion of operations for a range of spill sizes and weather conditions covering the range of expected conditions in the lease area. The expected degree of success and residual material after cleanup should also be described for each set of conditions. Further attention should be given to the positions and equipment of additional spill control units necessary to provide the maximum degree of spill control and an explanation of any factors which would reduce desirable coverage from this level of maximum security. The arguments applied to platform accidents do not apply to pipeline rupture, and routing considerations should be included to provide adequate clearance between biologically sensitive areas and pipeline corridors.

(29) It would be helpful to have at least one of the graphic maps modified to show tract numbers to permit easy assessment of proposed effects of

withdrawing specific tracts. Any proposed deletion of tract areas should be accompanied by a discussion of the other effects of the proposed deletion. Which areas are most promising for development, which present the fewest problems for development and the lowest risk of accidents during development? How would withdrawal of any proposed tracts affect the expected productivity of the development? What effects would the proposed deletion have on reduction of other environmental hazards originally calculated for the entire sale area?

(30) Page 14, Volume 1, note 1, states that no onshore facilities are anticipated for island areas.

Volume 2, page 148, mentions that oil and gas development within the proposed lease areas would affect the Channel Islands and their associated biota through increased human activity and physical use of the islands as possible staging areas and pipeline stations. We strongly advise against the use of the islands as staging areas and pipeline stations because of the possibility of accidental spills into ASBS.

3. Comments on environmental analysis problems associated with the proposed lease sale.

(31) Because the BLM investigated the concept of carrying out an extensive baseline biological study to determine both the existing environmental status in the area of the proposed lease sale and impacts which result from subsequent production, the EIS should include BLM's conclusions from the investigation. The extensive literature review, quoted at length, suggests that the biota are well known, whereas the information available is scanty in comparison with the potential impacts.

Where adverse impacts are identified as possible, but are not susceptible to quantitative measurement, the EIS should describe the necessary data acquisition and analysis as part of the mitigation measures necessary to reduce adverse impacts.

(32) The blowout rate cited on page 20, Volume 2, when applied to the numbers of wells listed on page 14 yields predictions which are one order of magnitude different from the blowout spill volumes predicted on page 25, paragraph 1. Some rectification is desirable.

Fish and Wildlife

The approval of the lease should be contingent upon the inclusion of the following three provisions.

(33) 1. Exploratory drilling, subsurface completions, and offshore oil storage and conveyance facilities shall not be located within six nautical miles of ASBS, marine life refuges, and ecological reserves.

(34) 2. Prior to drilling, the lessee shall demonstrate, to the satisfaction of the California Department of Fish and Game, oil spill containment and recovery capabilities sufficient to prevent spill damage to ASBS, marine life refuges, and ecological reserves.

(34) 3. Prior to drilling, the lessee shall provide evidence of the availability of sufficient rapidly deployable oil spill containment and recovery equipment to prevent oil spill damage to ASBS, marine life refuges, and ecological reserves.

The rationale for recommended lease conditions is as follows:

1. Oil development within six nautical miles of ASBS, marine life refuges, and ecological reserves could have the following detrimental effects:

   a. The probable abandonment by fur seals, harbor seals, sea lions, and elephant seals of their principal breeding areas in Southern California (Vol. 2, pages 109 and 412).

   b. Oil spills, which are described in Volume 2, page 409, as statistically inevitable, would impact ASBS, in many cases with no possibility of containment and recovery (Volume 2, pages 344 and 438-441).

   Each of these effects is unacceptable. ASBS have been established by State Water Resources Control Board to protect "... Those areas containing biological communities of such extraordinary, even though unquantifiable, value that no acceptable risk of change in their environments as a result of man's activities can be entertained."

(33) An oil spill in such an area could severely damage the ASBS and could eliminate its special significance (Vol. 2, page 432). The abandonment by pinnipeds of their principal breeding areas in Southern California could eventually result in their elimination from Southern California (Vol. 2, page 109). Inasmuch as ASBS and pinniped breeding areas generally coincide in this offshore area, the proposed conditions provide mutual protection for these areas.

   Thus, the effects can be prevented by confining pipeline placement and drilling operations to areas more than six nautical miles from ASBS, refuges, and reserves. This distance should allow enough time to deploy oil spill containment and recovery equipment in case of an oil spill and should provide enough solitude to enable pinnipeds to remain in their breeding areas undisturbed.

2. Protection of ASBS can only be provided, however, if the capability exists to contain oil spills. Volume 2, pages 382-384, lists the currently available oil spill containment and recovery equipment and capability of Clean Seas, Inc. We believe that, prior to any drilling, the following two capabilities should be demonstrated:

(34) a. The capability to contain and recover oil under wind, sea, and ocean current conditions existing 95 percent of the time in the lease area.

   b. The capability to deploy containment and recovery equipment in time to prevent an oil spill from reaching each ASBS in the vicinity, assuming a distance of six nautical miles between the spill and the nearest ASBS.

㉞ 3. Volume 2, page 438, reports that the oil industry does not currently maintain equipment for containment and recovery of oil spills from the Outer Continental Shelf (OCS) south of Point Dume, but that such equipment will be obtained by the time drilling operations begin. We believe the lease should stipulate that, prior to initiation of drilling, oil spill containment and recovery equipment sufficient (as demonstrated by the previous comment) to prevent oil spills from entering ASBS and the mouths of bays and estuaries harboring rare or endangered species should be obtained and stationed for ready deployment. This condition will enable the protection, not only of ASBS, but also of vulnerable populations of rare and endangered species dependent upon bays and estuaries as well.

Other comments and recommendations regarding specific sections of the environmental statement are as follows:

Volume 1, page 92, lines 25 and 26: We consider 5.0 mg/l D.O. as the minimum necessary to support marine life.

Volume 1, page 271, middle paragraph: Sette did not "explain" how ocean currents and water temperatures regulate larval sardine survival off the coast. He hypothesized it at that time, with many statements of qualifications, and to date it is still unsupported.

Volume 2, page 74, paragraph 3: Fish and benthic invertebrate larvae could also be affected by mass kills of plankton, if the concentration of their food organisms drops below the minimum level necessary for growth and survival.

Volume 2, page 106, lines 25 and 26: This statement should be documented or deleted.

Volume 2, pages 173 to 176: The discussion in this section regarding the potential impact on commercial fishing needs to be expanded. Specifically, discussion should be included regarding impact to the purse seine fishery resulting in net damage by subarea completions and interference with vessels while seines are set. In the event a substantial impact is identified, appropriate mitigation should be proposed.

Volume 2, page 258: Recent studies on least terns show no increase in population size. Although a small population of least terns has been recorded in San Francisco Bay in recent years, the remainder of the entire population of this subspecies is known only from about 20 sites in the following California counties: Ventura, Los Angeles, Orange, and San Diego. This is not a wide distribution as stated in this report. With the exception of the Camp Pendleton nest site, all active colonies now lack adequate protection from land development, human disturbance, or other detrimental influences. There is no indication that the present statewide population is now capable of repopulating any colony destroyed by an oil spill.

Volume 2, page 259, Table III-18: There is absolutely no indication that the California populations of California least terns and light-footed clapper rails are 50 percent or less of the world population. Both subspecies are thought to range into Baja California, based on old reports, but the current status there is unknown. The remaining areas in Baja California that may support populations of these subspecies are very restricted. There is no current evidence that California least terns still nest in Baja California. Probably the State's populations of California least terns and light-footed clapper rails represent far more than 50 percent of the world populations of both animals, the figure possible exceeding 75 percent for each.

Volume 1, page 330: The last paragraph contains outdated information. Estimates in two recent surveys of numbers of nesting pairs of least terns in San Diego County are as follows: 490(1973) and 471(1974) (Ref. K. Bender's nesting surveys).

(35) Volume 1, 484, Table II-88: No whale species are included in the official USFWS list of threatened wildlife.

Volume 1, page 488: The discussion on this page excludes known sighting records of light-footed clapper rails at Goleta Slough and at Carpenteria Marsh. Updating of this section with currently available literature on this bird is needed.

Volume 1, page 489, third paragraph: Craig (1971) did not estimate a population of 300 pairs of least terns in California. Nest sites, not populations, were surveyed in 1969 and 1970. The estimate of 300 nesting pairs was a compilation of records at known sites over both years; thus, this figure did not represent a population estimate for the State.

Volume 1, pages 490-491: The top paragraph of page 490 gives a total population figure different from that shown in Table II-89 on page 491.

(36) Volume 1, page 493, second paragraph: The golden eagle and Santa Barbara song sparrow are not considered to be endangered species by USFWS.

(37) Volume 1, page 496, last paragraph: Black rail is not included on an official threatened species list of USFWS.

(38) Volume 2, pages 262-263: It is stated that OCS leasing operations are not subject to state regulations prohibiting pollution and discharges to ASBS. We believe, however, that any discharges affecting state waters must meet existing state regulations, including the SWRCB prohibition of pollution and discharges to ASBS.

Volume 2, page 396, lines 17-21: We note that the EIS reports here that pipelines will be buried to a depth of at least 250 feet. As we believe this provision to be highly important, our conditional approval of the project is contingent on its implementation.

Volume 2, page 407, lines 21-23: We note that the EIS reports here that construction of pipelines from this lease sale will not impact ASBS or bays and estuaries occupied by rare or endangered species. As we believe this provision to be highly important, our conditional approval of the project is contingent on its implementation.

(39) Volume 3, page 41: In the OCS Order No. 7, it is stated that the lessee is responsible for control and removal of pollutants produced during the drilling or production operation. In the Memorandum of Understanding between BLM and USGS for Pipelines (Vol. 3, p. 636), it is stated that the BLM will conduct field studies relating to environmental impacts of pipelines and associated structures. In Appendix 20 (Vol. 3, p. 640), it is stated that USGS and the American Petroleum Institute are working together to determine where additional antipollution research is needed and to contract for such research.

Even with the above allusions, it is not clear if anyone is charged with monitoring the marine environment in the vicinity of the drilling platforms. Someone should have such responsibility, and it should be clearly stated in the final EIS.

Volume 3, page 126, lines 3-6: We note that the EIS report here that oil brines will likely be reinjected or disposed of at the platform site.

(40) Volume 3, pages 579 ff: These tables, which provide, in an easily recognizable format, important assessments and judgments of potential environmental impacts on individual areas, have been used to rate lease areas according to severity of hazard potential due to oil operations. While we believe that this approach has merit, we have reservations about the ability of the tables to accommodate information on excessively detrimental impacts. For example, the potential elimination of a species can only be given a value of 1.0 on the scale used, which does not adequately represent the unacceptability of the impact. Also, the bird rookery data employ the concept that only shoreline areas are important as resting sites for the various bird species under consideration. Areas with little shoreline proximity, such as the Santa Rosa-Cortes South Tract, are depicted as having very low proximity values and therefore, by implication, little potential for oil spill problems with birds. This implication is erroneous, however, since it is obvious that pelagic species such as shearwaters, fulmers, and alcids, roost at sea in sizable numbers and would therefore be highly vulnerable to spills. For these reasons, we recommend against great reliance on the tables to adequately demonstrate all major detrimental impacts.

(41) Volume 4, Rare and Endangered Species Map:

1. Light-footed clapper rail: The range in San Diego Bay is too general. The range actually is limited to only two remnant marshes in the bay. Known locations of these birds at Carpenteria Marsh and Goleta Slough are not indicated.

2. California least tern: Known nesting sites at Playa del Rey and Huntington State Beach are not shown. The distribution south of Mission Bay is too general and too extensive.

3. California brown pelican: The nesting site at Scorpion Rock, Santa Cruz Island, is not indicated. The range map shows only nesting areas, not overall range.

4. Belding savannah sparrow: Errors in known distribution include Santa Margarita Lagoon site erroneously marked in area south of Oceanside; Agua Hedionda Lagoon site erroneously marked at Batiquitos Lagoon; and San Elijo Lagoon and Imperial Beach sites not marked.

(42) One additional general aspect that needs to be considered is the feasibility of safely drilling from platforms in water depths greater than 800 feet. While we have no specific expertise to evaluate the feasibility of this, sources other than the subject statement have led us to believe that technology does not currently exist for safe drilling in water depths greater than 800 feet. Therefore, this matter needs to be considered in detail, and appropriate prohibitions need to be instituted if warranted.

Navigation and Ocean Development

Volume 2, page 9: Placement of Temporary and Permanent Platforms, Boats, Barges, and Pipelines in Conflict with Commercial Fishing Trawling Operations and Ship Navigation.

(43) The report states that as many as 60 platforms could be built in the area. There is no indication that these structures would be above the water level, partially submerged, or on the sea bed.

There is no information about spacing the structures. Would it be better to cluster them or have them widely separated? What problems would either method create for boating or the pumping of the oil?

(44) There is no estimate given as to the amount of increased ship traffic which would occur. Increases during weekends would cause more problems with recreational boating. The Department is concerned with the amount of increased traffic as it relates to a potential increase in boating accidents.

Although there are traffic lanes for shipping to follow they are not required to stay in them.

Volume 2, page 34: Collisions Resulting from Conflict Between Ship Navigation and Offshore Structures.

(45) Information about the number and type of accidents during the past few years is not projected into an estimate of future number of accidents. We are not able to make an estimate, as the report does not contain information on the amount of increased ship and small craft traffic that would be generated.

Volume 2, page 35: Accidental Deaths and Injuries on Oil Industry Structures and Vessels.

(46) The report makes reference to fatalities caused by oil and gas operations in the Gulf of Mexico, and uses this information to predict a fatality rate of less than one a year for Southern California waters. The report does not indicate if the statistics include recreational boating deaths or injuries resulting from oil and gas operations.

Volume 2, page 201: Impact on Ship Traffic and Navigation.

(47) Impact activities are divided into three major groups. The estimate given for the duration of each activity is not clear. Page 16, Volume 1 of 4 refers to the exploratory activity lasting for five years, but page 17, Volume 1 of 4 makes reference to exploration and development activities lasting longer, from a peak period between 1985 and 1990 to as much as 20 years later. It is not known if the activities will be during daylight hours or at night or both. The first group is (1), "Summary Exploratory Drilling," which will involve vessels criss-crossing areas and not traveling in customary directions. This activity is referred to as being short term and disruptive. There is a need to clarify what is meant by this. Is short term to mean a few days, or less than one year? How disruptive will the activity be? Will the area in which the exploratory vessels are working have to be closed to routine traffic for certain periods of time? Will these vessels be towing testing equipment?

(48) There is no proposal to overcome the anticipated problems or assume liability.

(49) The second group, (2), "Development Well Drilling," will involve construction of structures on the ocean floor and above water, which will require the use of shore based small craft to carry supplies, equipment and persons. There is no estimate of the increase in small craft traffic this will create or when these vessels will operate.

㊿ There is no estimate as to how long the trenching and pipe laying phase would take, or whether the slow moving vessels involved in this work will operate around the clock, or only on week days. Information on page 16, Volume 1 of 4 does not make it clear whether subsea structures or platforms will be used close to shore.

(51) The third group, (3), "Production Operations," is the last phase, and would create additional ship and barge traffic if pipe lines are not used to transport the oil to shore. It appears that the use of pipe lines is absolutely necessary for keeping the number of boating accidents to a minimum.

(52) On page 204, there is a reference to increase in traffic of tankers to be three percent for the Santa Barbara Channel, and the Port of Los Angeles-Long Beach to be less than two percent. Reference is also made to a forecast by Alyeska (APSC1971a), that tanker traffic would increase at West Coast ports by .08 ships per day. However, in reviewing the data presented, it appears that figure should be .86 ships per day, therefore, the question of increased vessel traffic is certainly open to question.

Volume 2, page 251: Sport Fishing and Recreational Boating.

(53) The report states in the case of the Santa Barbara spill, for a period of six months, the total number of party boat days was only thirteen percent of previous comparable periods. The report does not estimate the loss in terms of private boats which would not be fishing in the waters due to a spill.

Recreational boating could be affected by increased highway congestion in the harbor areas, creating problems for boaters trying to launch their boats or reach their tied-up craft. The increased demand for berthing of the commercial small craft might result in loss of berths for recreational boats and even discourage the sale of boats if such obstacles are severe enough. If the oil is barged ashore, the additional traffic will create even more congestion. However, harbor improvement could become feasible as a result of greater need.

Offshore platforms can be of value as navigational aids, but can also be hazards, particularly during limited visibility for small boats without electronic navigational equipment. For pleasure boats with radar, the platform would be of value in limited visibility. If the platforms are densely located, they could be more of a problem to sailboats than powerboats.

Obviously, many boaters will consider platforms undesirable, and a violation of the normal solitude which exists on the open sea.

Volume 2, pages 328, 339 and 340: Structures.

Structures can cause safety problems for shipping, recreational boating, and fishing when they are in shipping lanes, intensive recreational use areas, and prime fishing areas. The report lists the following tracts to be in such areas, and we recommend precluding leases for these areas.

(54) "Tracts 61-72, 206, 209-211, 213, 228, 234, 238, 240-248, 252-255, and 259-261 would be in either a commercial shipping lane, a designated submarine lane, or a prohibited dumping area."

"Tracts 16, 17, 21-26, 29-31, 173, 175, 180, 186-195, 202, 206-260, 262-272, 274-279, 281-286, 289-292, and 295-297 . . . would be within an intensive use area."

"Tracts 111-114, 121-124, 135-138, 148-151, 155-157, 197, 204, 205, 215, 232, 234-241, 243-270, 273-276, 280-282, 287, 288 and 293 . . . would be within a 10 million pound per year catch block . . ."

Volume 2, page 373: U. S. Coast Guard.

The Coast Guard has the authority to promulgate and enforce regulations covering warning devices, safety equipment, and other matters related to safety of life and property on platforms and drilling vessels.

Volume 2, page 422: Interference with Ship Navigation.

(55) The report indicates little interference will occur between vessel traffic in the area as the majority of the facilities will be several miles from shipping lanes and be equipped in accordance with U.S. Coast Guard regulations. However, the chart on page 338, Volume 2 of 4, does not substantiate this! The number of platforms is estimated to be 40 to 50. A previous estimate in the report on page 9, Volume 2 of 4, refers to 60 platforms.

Oil and Gas

(56) Volume 1, page 3: The estimate of 14 billion barrels of recoverable oil and 28 trillion cubic feet of gas for the proposed lease sale area is the same estimate made by AAPG and NPC for the total Southern California region including state waters. This estimate is at least double and possibly three to four times what it should be for the lease area which is only about 1/8 of the total regional area.

(57) Volume 1, page 6; A review of Bulletin No. 321 by USGS in 1907 and more recent maps indicates that a total of about 400 wells were drilled in Old Summerland field and that about 220 would be classified as offshore.

Volume 1, page 7, paragraph 2: Add after the first sentence: Drilling into the tidelands from offshore sites was reallowed shortly thereafter but the only new drilling from offshore sites was two wells from Island Esther in 1971.

Also add at the end of the paragraph: About 800 thousand acres of mineral rights are controlled by private and municipal concerns upon which 215 new wells have been drilled from offshore sites since the 1969 blowout.

Volume 1, page 15: Estimates on this page should also use high and low ranges similar to that on page 14.

Volume 1, page 20, Paragraph 2, line 2: Change to read -- There are 131 leases covering 165,157 acres on state land and approximately 20 leases covering 20,000 acres on municipal lands developed by 9 platforms, 7 islands, 3 piers and 19 shoreside, multiple sites from which 1,606 wells produced 70.58 million barrels of oil in 1973 and 30.6 million Mcf. of gas.

Paragraph 3 states that there have been 27 OCS oil and gas leases on submerged lands, etc. --- change "leases" to "lease sales".

Volume 1, page 47, paragraph 3, line 4: Concentration of seeps appears to be in the Santa Barbara Channel area. Change "appears" to "is".

Volume 1, page 505, paragraph 3, line 5: Change "southern" to the "south western" portion of the county which is being described in this paragraph.

Volume 1, pages 509 and 512: Santa Barbara Island is in Los Angeles County and San Nicholas Island is in Ventura County.

(58) Volume 1, page 677: Production statistics are not complete, they should include wells and production from dry gas fields.

Volume 1, page 681: The first statement should be changed to: On December 11, 1973, the State Lands Commission partially lifted its drilling moratorium which was in effect nearly 5 years, to allow drilling from existing offshore facilities on a lease by lease basis.

The third statement should be changed to: Federal OCS production declined for the second consecutive year.

Volume 2, page 9, paragraph 1: Add the creation of an artificial reef and a possible safety station for small craft in distress.

(59) Volume 2, page 19, paragraph 1: If spillage rate since 1970 included lines in use 15 years or more, the rate should be adjusted to reflect the poorer performance of these lines.

(60) Volume 2, pages 107 and 109: The conclusions on page 107 that only elephant seals would remain on the islands in the face of oil drilling operations, and on page 109 that of all the dangers involved in the proposed lease, that to pinnipeds is potentially the worst, both assume drilling in nearby state waters or allowing onshore oilfield support activities near rookeries. Both of these conditions can easily be averted.

Volume 2, page 151, paragraph 4: States that foragers would be vulnerable to the threat of oil polluted vegetation. This is not the case in many oil fields throughout the state which are being grazed.

Volume 2, page 157: Includes a discussion of the impact on grey whales. It may be of interest that during a flight over the north-western portion of the Santa Barbara Channel in March 1974, I saw grey whales that appeared to be swimming intentionally through the oil slicks caused by the natural submarine seepage in the area.

(61) Volume 2, page 193: The comparison of seawater and oil field brine lists the ranges of concentrations of constituents for oil field brine which are beyond most concentrations of California brines.

Volume 2, page 210: San Miguel Island should be added to areas with military restrictions according to map on Potential Use Conflicts in Volume 4.

Volume 2, page 214: Here and throughout the report when referring to the minimum distance from the shore that activities are to be conducted, three miles is used. This should be changed to 3 nautical miles (3.45 miles) plus the 3/4 mile when referring to leases adjacent to state sanctuaries.

Volume 2, page 226, paragraph 1: States that spills will cause permanent major losses where the extirpation of a species important to recreation occurs. The limiting phrase "important to recreation" should be omitted.

Volume 2, page 240, paragraph 2: It should be noted here that structures in Santa Monica bay will be seen from two directions and therefore increase the impact.

(62) Volume 2, page 243, paragraph 2: States that there will be no federal buffer zone around the northern channel islands. The state lands around these islands are designed sanctuaries, therefore, the 3/4-mile buffer zone as discussed on page 377 should apply.

Volume 2, page 273, line 1: States that during the exploration well drilling phase, the impact on government services will be greater, etc. ---. Change "exploration" to "development".

(63) Volume 2, page 283, paragraph 2: States that all revenues from lease payments will go to the Federal Government. Some provisions should be made for compensating coastal states and counties. Possibly ad valorem taxes to the adjacent counties and a percent of the royalty to the state.

(64) Volume 2, pages 290-309: Several references are made to the consumption and production forecasts published in "Energy in California, January 1973" (The Resources Agency, State of California). It should be noted that these forecasts were based on projections of trends prior to 1973 and are no longer valid because of present and future conservation programs and the increased emphasis on alternate sources of energy.

Volume 2, page 368, paragraph 2: Combines the State Lands Commission and Division of Oil and Gas into one agency. Change by replacing the "and" between the two agencies with a comma.

Volume 2, page 381, paragraph 4: Add that since spills will nearly always drift shoreward and therefore into state territory, the chemicals and dosages used to control spills must be licensed by the State Department of Fish and Game prior to application.

Volume 2, page 383, paragraph 3: Add the State Division of Oil and Gas to the list of agencies that witnessed the demonstration of the VICOMA Seapack.

(65) An added mitigating procedure could require that each separate facility require an environmental and geologic hazards review with alternatives and mitigating measures prior to initiating operations.

Low level spillage is nearly all attributed to the disposal of produced brines, therefore operators should be required to install the best equipment available at the time facilities are installed, or when feasible, to inject the water back into the producing zones.

(66) Volume 3, page 23: OCS Order 2 should specify that specific operational performance tests be witnessed by a Federal inspector in accordance with State Offshore regulations.

Examples:

1. Blowout Prevention Equipment pressure tests.
2. Crew blowout-control drills.
3. Drilling fluid system inspection.
4. Casing pressure tests.
5. Annular cement fill surveys.
6. Water shut-off test.
7. Abandonment plugs.

Volume 3, page 125, last paragraph: Discusses oil-field brine produced in the Gulf of Mexico. It should be stated that the concentration of dissolved solids in water produced from California fields rarely exceeds that of sea water and is normally much less.

(67) Volume 3, page 132, paragraph 2: States that offshore pipelines are designed and installed to meet the same codes and specifications as onshore pipelines. The design should consider the water environment and an additional margin of safety should be added because of the added difficulty encountered when containing and repairing a leak.

Volume 3, Section 9: On the Description of Oil and Gas Operations does not discuss treating and storage facility operations.

Volume 3, page 150: The stratigraphic column on this page is not very legible.

(68) Volume 3, page 191, paragraph 1: The magnitude of earthquakes associated with California oil production should be included.

Volume 3, page 192: Concludes the discussion on landslides by stating that site by site evaluations should be made. This should be changed and applied to all geologic hazards.

Example: Site by site geologic hazard evaluations shall be made and approved by the Department of the Interior prior to initiating operations.

Volume 3, pages 269-285: Names of species are upside down.

(69) Volume 4, Esthetics: The lines drawn to show area of esthetic impact and lesser esthetic impact should not be drawn around islands that are nearly uninhabited. The pink line with teeth around Santa Barbara Island is not identified in the legend.

Volume 4, Land Use: Platforms, should be platforms and man-made islands. Correct map by removing platform symbol for "Harry" near Point Conception and adding 3 additional symbols off Long Beach for THUMS islands.

The location of all oil processing plants are not shown throughout the map coverage for example, plants used in some shoreline fields and most inland fields of Ventura and Los Angeles basins.

Volume 4, Tectonic: This map includes data with varying degrees of detail and is not complete because known major faults within basins are not shown. All known major faults should be shown and the limitations of available data should be noted.

Volume 4, Current Lease Status: Cooling pipelines for Redondo, El Segundo, and West Montalvo power plants are not shown and the three pipelines at Coal Oil Point are too far west.

(70) The state land around the northern channel islands is designated a sanctuary, therefore the 3/4-mile buffer zone should be shown.

Mines and Geology

(71) Volume 2, page 462-463: Landslides, both submarine and onshore, were not considered in Section 11 on Geologic Hazards. Only a brief discussion of hazards affecting shallow geologic structures is included. Under Geophysical Information, and only a brief mention of the problem of submarine landslides is made in the appendix. Submarine landslides are hazards where undersea slopes are undercut to bury a pipeline, or where a pipeline or other facility is installed across the path of a slide. Submarine landslides, similar in magnitude to those associated with freeway construction, may cause disruption and failure of petroleum handling facilities.

(72) Volume 1, page 45: Provisions for enforcing the implementation of methods to detect and control withdrawal induced subsidence should be more clearly stated. Casing failures, such as those described for the Wilmington field, are a hazard to submarine facilities. Fault movements and underwater slides that may result from the extraction of oil are hazards for both well and pipeline facilities.

(73) The problems and possible conflicts that might result from the utilization of offshore minerals should be considered. The subject of offshore minerals, other than petroleum, is treated in a brief two-sentence comment noting the presence of phosphate, manganese nodule, and sand and gravel deposits. In addition, consideration should be given to other mineral concentrations, even though they may not presently be considered to be economic. These include marine placers such as titaniferous magnetite and ilmenite found in the deposits that occur between Redondo Beach and Palos Verdes Point (CDMG Bulletin 190, 1966).

(74) Estimates of maximum credible earthquake and accociated ground motion should be made for the offshore sites. The seismicity section was devoted mainly to earthquakes of continental origin, but since the area of interest is oceanic, more attention should be paid to the seismicity of the Santa Barbara Channel and associated phenomena. A significant increase in the number of earthquakes has been reported by Lee and Vebldev (Seismological Society of America, 1973). A number of active and potentially active faults (Pitus Point, Oak Ridge) pass near or through some of the prospects.

Parks and Recreation

(75) Volume 2, pages 323 through 348: This section of the report indicates the spatial relationship between proposed lease tracts and environmental and cultural (rare and endangered wildlife habitat, esthetics, intertidal communities, outdoor recreation, etc.) factors. The report does not indicate whether these factors have influenced the selection of tracts proposed for lease.

(76) Volume 2, page 437: We support the concept expressed in Alternative A. 1. "Delete tracts for protection pf Pinnipeds and ASBS Areas" and recommend that it be expanded to include other areas of rare and endangered wildlife habitat, and any public recreation area. As stated on page 440:

(76) "It should be pointed out that even this distance (six miles) will not completely prevent pollution from entering the ASBS because of the water soluble fractions of the oil and because cleanup operations are not 100% efficient. Furthermore, a large 100,000 bbl. spill will not be completely contained by present methods."

(77) Volume 2, page 478: The report should also compare net energy production and environmental impacts in addition to economics of other domestic and foreign oil extraction operations.

Cultural Values

(78) To insure the preservation of prehistoric and historic cultural resources in the area to be affected by this undertaking, we suggest the sponsors initiate an archeological, architectural, and historical records search and field survey as appropriate to identify and evaluate the cultural values in the area of potential environmental impact. There are strong indications that substantial values, both underwater and on the shorelines, will be impacted by this undertaking. These values, therefore, should be located, evaluated, and protected prior to Agency approval of this undertaking.

We would appreciate further information on the "procedures (which) have been worked out involving the National Park Service in its role as technical advisor for such (cultural) resources, the geological survey and the Bureau of Land Management, whereby a satisfactory cultural resource reconnaissance survey procedure may be implemented to discover these resources prior to construction activity" (Vol. 2, page 246), and suggest these procedures be implemented prior to approval of the proposed sale.

(79) We have determined that the procedures outlined on pages 399 through 410 are inadequate regarding compliance with Executive Order 11593 and would further suggest revision in accordance with 36 CFR Part 800.

We find the assessment of Damage to Historical and Archeological Sites, Structures, and Objects, on page 423 of Volume 2 to be inappropriate until the sites, structures, and objects are identified and their significance and nature are known.

The unavoidable adverse environmental effects on pp. 407-431 in Volume II were poorly documented and presented, especially in regards to the effect of an oil spill.

(80) The actual smothering of marine organisms by a coating of oil probably kills the greatest number of animals in an oil spill.

The time of the year that an oil spill occurs would be the most significant factor to birds. During the periods when migratory birds are present, the potential for losses could be the most devastating.

The effect of an oil spill to the wetlands and beaches on pp. 413 and 414 of Volume II was grossly inadequate in enumerating the problems and damage done to recreation areas. The severity of the damage depends on the amount of oil deposited on the beach, the extent of the beaches inundated with oil, the type of shoreline contaminated, the duration of the effect of pollution (oil can be covered by sand and exposed at a later date) and the time of year that a spill occurs.

An oil spill that occurs during the high use period (June, July, August) or a spill that persists through this period is much more disruptive to recreation users than one occurrring in the off season. The percentage of user days at Southern California beaches during the high use, three month period of June, July and August is 52% of the total yearly use (12 month period April, 1974 through March, 1975). The total number of user days in the 23 beaches operated by the State Department of Parks and Recreation was 11,091,559. An oil spill in the lease areas could affect one or more of the beaches. There are a number of other high use periods in the off season, such as holidays and vacation periods (i.e. Christmas, Easter, etc.). When oil spills occur during these days, the result can be devastating.

The duration of a spill has a great effect on recreation use. A large spill gets a great deal of publicity and many people stay away from an area, even after a clean-up is accomplished, since they do not want to take the chance of getting oil and tar all over them. A clean-up of an oil spill is usually not a one-time effort since oil tends to come in during a period of time, becomes exposed and is buried several times and, in general, has a tendency to reappear. Many visitors show up at a beach area and then go home after they discover there is tar on the beach.

(80) The type of shoreline polluted by oil is important. The most damage to wildlife occurs on a rocky shoreline where the diversity of habitat provides homes for a greater number of species. Oil tends to persist and be seen for a greater number of species. Oil tends to persist and be seen for a greater period of time in these areas. A sand beach has fewer species present and the clean-up can be more effective. Replacement of the contaminated sand removed is essential to the ecosystem, but it becomes and increasingly difficult and more expensive task to obtain this material.

The extent of beaches contaminated may be a single beach to a number of beaches. Even a small spill results in many unhappy visitors. The tracking of oily feet into cars, housing facilities, restrooms and other places results in a workload and/or expense to someone. An extensive oil spill multiplies these problems.

The amount of oil and the effect of the contamination is a very important consideration. Sometimes the materials used to absorb the oil become a clean-up problem in themselves. Driftwood, kelp and other debris can become contaminated and may have to be removed.

Although underwater recreation areas are not too greatly affected other than temporarily through the establishment of underwater pipelines and other bottom disruptions, an oil spill would affect intertidal areas and would present a problem to a diver gettting to an underwater area. Oil would mostly be a surface problem with the possibility of getting covered with oil and tar. It is conceivable that some of the oil would congeal and pick up impurities and sink to the bottom.

The degradation of esthetic values on p. 429 of Volume II only gave minor emphasis to the visual impact of the platforms, onshore treatment and storage facilities and oil spills. This needs to be greatly expanded.

(80) There was no mention of the impact on the recreation oriented industries which would include transportation, housing, sporting equipment and sporting activities (fishing, equipment rentals, etc.). A large oil spill results in a much reduced visitation which, in turn, is reflected in reduced purchase and use of recreation oriented services and supplies.

2. State Agencies

a. The Resources Agency of California

The Resources Agency submitted comments concerning the need for a national energy policy, more State-Federal cooperation on coastal zone planning, and baseline study completion prior to leasing. Additional specific comments were submitted covering such areas as fish and wildlife, air and water quality, onshore impacts, economic costs, alternatives and mitigating measures.

Disposition

General Comments

(1) The Department supports consultation and coordination with appropriate state and local authorities in all aspects of the OCS oil and gas leasing program. With regard to this proposed OCS sale #35, the Department undertook an extensive effort to inform officials and the public concerning the Southern California proposal. The Department intends to follow this practice in the future in California and other areas as well. We regret that the Resources Agency of California has seen little evidence of this relationship and would encourage them to avail themselves of the increasing opportunities which will be available to them in the future.

Recognizing the importance of coastal State involvement in the planning phase of OCS development, the Department recently proposed the creation of an OCS policy advisory board similar to its OCS Research Management Advisory Board of which the State of California is a member, established in 1974. The policy board would be similarly comprised of various Federal agency representatives as well as representatives from each coastal State, and would provide a forum for keeping the states abreast of Federal OCS program activities while encouraging them to offer comments and recommendations on OCS policy decisions.

(2) We have noted in the final EIS that the 1973 report "Energy in California" is no longer considered valid by the Resources Agency. The purpose for citing this study and other reports concerning the energy supply/demand picture in California is to present, based on the best available information, the potential impacts this proposed sale could have on California's energy supply/demand situation and not for the purpose of justifying the need for offshore oil and gas as the Resources Agency has indicated.

(3) An alternative which considers delaying the proposed sale until baseline studies are completed in the lease area has been included in Section VIII of the final EIS. The pre-operational environmental studies will be completed prior to any development activities in the area should this sale proceed as proposed. This information would be used in considering whether to approve development plans submitted by the lessee prior to any development or production activities. The detailed plans for development must be approved by the U.S. Geological Survey (USGS) before any development can commence. The USGS is empowered to shut down operations on any lease, or issue notices to operators, when public safety and public resources are in jeopardy. As such, benchmarks and monitoring information can modify operations after lease

issuance. The Secretary, too, can halt development for environmental reasons, as was done following the Santa Barbara blowout. The Department does not lose control over the operations simply because leases have issued.

(4) While the separation of exploration from development may not be possible under the OCS Lands Act, several measures have been introduced in Congress that will directly or effectively amend the Act to achieve this separation. The Department is currently investigating what modifications can be made under existing law including a dual EIS system to separate exploration and development phases. It has been suggested, and indeed is permissible under law, for the USGS to require the preparation of an EIS on any or all development plans submitted by industry after leasing. The final OCS programmatic EIS considers the separation of exploration and development in Section VIII of the Alternatives.

(5) Both the OCS Programmatic final EIS and this site-specific final EIS consider energy conservation and alternate energy sources in the Alternative sections of the respective documents. The Project Independence Report is frequently cited in both documents as the most recent and comprehensive attempt to define national energy requirements now and in the future, as well as methods for meeting our energy needs domestically or from secure foreign sources. The programmatic final EIS makes extensive use of the Project Independence Blueprint, the Ford Foundation's A Time to Choose, and the recently completed study of energy alternatives done by the University of Oklahoma. The energy alternative

portion contains a discussion of the various impacts conservation can have on national energy demand.

(6) This was discussed in the DEIS in Appendix 10 Section A. A section on Geological Hazards has been added to Section III.A.

(7) Sections II.H.2. and III.F.2. concerning water quality description and potential impacts have been revised and expanded to include our best estimates of anticipated pollution levels where information is available.

(8) These provisions concerning impacts on fish and wildlife resources have been considered in proposing new alternatives to protect California's unique environmental resources in Section VIII.A. Also refer to Special Stipulations in Section IV.E.4.a.

(9) The disposal of oil contaminated wastes generated by an oil spill and solid wastes resulting from construction activities and use of facilities onshore is not within the Department's authority to prescribe. However, we would point out that the offshore petroleum industry must consider these matters in their planning efforts to develop measures with state and local authorities and the EPA responsible for solid waste management. Disposal of solid and liquid wastes from offshore platforms and operations are regulated by OCS Order Nos. 7 and 8 (See Appendix 5).

(10) It is agreed that the DEIS minimizes the onshore air quality impacts. Section III.F.1. and Section V.C. of the final EIS have been enlarged substantially to reflect the impact of oil spill evaporation on the onshore air, and the increase in air deterioration resulting from offshore and onshore operations. Greater quantitative analysis has been included on the potential amounts of pollutants which could be introduced into the air and the types of negative impacts which could result.

(11) We have included a discussion of 5 discrete areas in the proposed lease sale; Santa Monica Bay; Santa Rosa-Cortes North; San Pedro Bay; Santa Barbara-Santa Catalina; and Santa Rosa-Cortes South. This discussion includes environmental and resource comparisons. See Section VIII.A.1. of this EIS for this discussion.

(12) The final EIS considers these matters in Sections II.J., III.A., III.J. and VIII.A.1.

(13) We have included an expanded discussion of deep-water development technology in the final EIS. See the attachment on offshore oil and gas operations and Section I.G.

(14) The final EIS acknowledges the potential for mitigation of a coastal zone management plan (Section IV.A.) and the Department's intention to coordinate with the Coastal Zone Commission in California. All planning efforts and environmental impact statements

should be coordinated with the California Coastal Zone Commission or its successor agency. During the preparation of the DEIS, coordination with the planning efforts of the Coastal Commission was limited by the fact that their plan preparation was in the preliminary stages. A major problem in coordinating the project was that the recommendations of the South Coast Regional Commission may have differed from those adopted by the State of California. The timing factor also caused some difficulty. The DEIS was prepared and released several months prior to the issuance of the Preliminary Coastal Plan.

A thorough review is now complete of the Preliminary Coastal Plan. Through this effort, the FEIS has been changed to reflect the recommendations of the Preliminary Coastal Plan. It should be emphasized, however, that the final Coastal Plan may or may not be changed from the Preliminary Coastal Plan. Refer to Section I.D. for a summary of the background of Proposition 20 and the policies of the Preliminary Coastal Plan.

(15) Refer to the final programmatic EIS for comparisons of possible OCS leasing areas nationwide. See also Section VIII.A.1. for an analysis of the five proposed lease areas.

(16) A summary of the most significant impacts in each of the five lease areas is included in the FEIS in Section VIII.A.1.

(17) Please refer to our responses numbered (11) and (16) above.

(18) Air and water circulation patterns vary to such a degree that it is not practical to incorporate these factors into the proximity analysis. These matters are treated in the EIS but are not included in the proximity analysis.

The proximity evaluation is intended to provide the reviewer and decision-maker with an analysis that will be a useful and manageable tool which when supplemented with other information will present the relative environmental risks posed by each tract. We realize the evaluation is limited to spills and structures and that other factors such as circulation patterns, effects of water depth and bottom conditions on technology, and development, etc., are important also.

Even though the proximity evaluation is a generalization, and its usefulness may vary depending upon the resource, it is our opinion that to include other factors, which may vary considerably from tract to tract, would introduce a veritable "mishmash" of subjective interpretations into the analysis. Therefore, we limited the proximity evaluation to factors which were the least variable and presented more detailed discussion of specific resources, and other variable factors, under their appropriate impact Section in the EIS. The designation of a tract as having high hazard, disruption or aesthetic degradation potential does not at that stage take into account the mitigatory measures that are proposed and discussed in other sections of the FEIS.

(19) Alaskan crude will be arriving via tanker by 1978. In addition, if the OCS is not developed, foreign crude will arrive

via tanker in Southern California. With OCS development, the foregin tanker traffic could be reduced or perhaps even eliminated by 1985. This is consistent with the goal of Project Independence. As the Resources Agency states in its comments, barrel-for-barrel, a greater environmental hazard exists with tanker traffic vis-a-vis offshore development. The "lesser of two evils" grounds for development is, therefore, not weakened. With OCS development, less tanker traffic will occur. Most OCS oil will be moved by pipeline whereas imported crude would all be shipped via tanker.

(20) For a discussion of the state-of-the-art of deep-water development technology see the Section I.G. of the final EIS. For a discussion of whether to require the use of submerged production systems see the Section III.A. of the EIS. The technology of deep water drilling and production is in an infant state of development at the moment. Deep water platforms and subsea completions are being tested in the U.S. and various areas of the world. By the time deep water tracts are to be developed for possible production of oil and gas (5-10 years from now) technology will be more advanced and its implications can then be analyzed in more detail before approving development plans. It is the policy of the Department that no development plan will be approved by the USGS in this sale area until it has been demonstrated, to the Supervisor's satisfaction, that development can be undertaken safely.

(21) Please refer to our response to item Nos. (1) and (14) above concerning consistency with a preliminary coastal zone

management plan. Also note that the final EIS considers delaying the proposed sale until the California state legislature has adopted the plan (Section VIII.C.).

(22) See our responses to item Nos. (2) and (15) above. The oil and gas supply and demand projections used in the Draft EIS were not based on the Resources Agency Report. BLM economists used it and the Sherman Clark Associates Report, as guidelines to develop their own supply and demand forecasts. However in the final EIS, potential socioeconomic effects are more carefully described and analyzed as are the potential environmental dangers in regard to the proposed development.

Specific Comments

(23) The final programmatic EIS should be consulted for a detailed description of the comments submitted concerning the proposal to increase OCS leasing nationwide.

(24) New onshore refinery facilities if needed, other than pipeline terminations, will not be a direct result of this sale, but instead will result because of increased demand for petroleum products. If demand remained static, no new facilities, other than pipeline terminations, would be needed. OCS oil would simply be replacing imported foreign crude. Refer to Sections I.D. and III.J.3. For a discussion of impacts in the event a refinery is constructed, see Sections III.F.1., I.2., J.1. and J.2.

(25) The Proposed OCS Planning Schedule of June, 1975 (See Appendix 3) identifies two possible future sale areas (i.e., sale

areas 48 and 53 on the Schedule) offshore California, Oregon and Washington. Until such time as these possible sale areas are opened for nominations and tract selections are made we will not have any information on which to make determinations concerning the relationship of the proposed action (Sale #35) and possible future actions. There is only one proposed Federal activity in the Southern California Borderland area. If OCS Sale No. 35 is held and if a subsequent sale is proposed in the future, then the EIS for the subsequent sale would include a discussion of the relationship of the previous sale and the proposed sale. The final EIS for the Proposed Increase in Oil and Gas Leasing on the OCS considers impacts of the program as a whole.

(26) The final EIS does consider delaying the proposed sale until new technology is available which would reduce the level of risk associated with oil spills (See Section VIII.C.). However, the EIS does not consider alternatives that might result from improved technology to be committed mitigating measures. The reasoning for this is that improved technology which would mitigate an impact may not be available at the time of need.

(27) Permanent booms around platforms are impractical, and uneconomical. Spills could surface up to a mile from a platform. (The Santa Barbara blowout on Platform A occurred 1/4 mile from the platform.) Spill containment and clean-up equipment can be transported by Coast Guard C-130 aircraft, or helicopter, for rapid dispersals

as stated in Section IV.C. Also see Section VIII.C.1. and our response to the Dames and Moore comment letter regarding oil spills and cleanup capabilities.

(28) The Resources Agency criticizes BLM for not discussing the impacts of the alternative proposed on pp. 437-442 of Volume II. Refer to the new alternatives and discussion Section VIII. A. Also see the special stipulation in Section IV.E.4. concerning oil spill cleanup and containment equipment.

The question of state control over pollutants coming into areas of special biological significance (ASBS) from OCS operations has been discussed in Section III.I.5. of the FEIS.

(29) Concerning a map showing numbered tracts, graphic 15 has been added which has the tract numbers. An alternative has been included in the final EIS which compares the 5 distinct areas in the proposed sale area. Also refer to the other new alternatives in Section VIII.A.

(30) We share the concern of the State Resources Agency regarding the potential use of the Channel Islands as sites for oil separation and storage facilities. We recommend the offshore petroleum industry consider other areas for the location of their facilities, and urge that those agencies with jurisdiction consider means to prevent unacceptable development.

(31) Many of the data gaps will be filled by the baseline study initiated by BLM and a considerable portion of the information will be available in the summer of 1976. However, these data are not presently available and therefore were not included in the EIS. See

Section I.D. for a summary of the ongoing and proposed baseline study.

The mitigation section is designed to discuss those measures which will become part of the proposal or which already exist and will mitigate impacts. The results of studies could have a mitigating effect, but there is no assurance that they will have, and until the results of the studies are known, we can only speculate about possible mitigating effects.

(32) Section III.A. has been completely revised and includes correction of this error.

(33) Refer to Section VIII.A., Alternatives to the Proposed Action where the option to hold the sale in modified form with provisions for the protection of pinnipeds and ASBS areas is thoroughly discussed.

(34) OCS Orders Nos. 7, 8, and 9 require the lessee to maintain standby pollution control equipment at each operation which is the most effective available, resulting from the current state of pollution control and removal research and development efforts and which can be deployed immediately upon notification that a spill has occurred. (Volume III, Appendix 5.) See also the special stipulation on cleanup capability and response time in Section IV.E.4.a.

Other Specific Comments

Where appropriate, suggested corrections were made, additional information was incorporated, and inaccurate information was deleted, except for items noted below.

(35) Volume 1, p. 484, Table II-88. This table was mislabeled. The whales are listed as endangered by the U.S. Fish and Wildlife Service on the official Endangered Fauna List issued in May, 1974.

(36) Volume 1, p. 493. The golden eagle was erroneously included here, however the Santa Barbara Song Sparrow is listed as endangered by the official U.S. Fish and Wildlife Service list of Endangered Fauna, May 1974, and in the Federal Register, Volume 40, No. 96 - Friday, May 16, 1975.

(37) Volume I, p. 496. The California black rail, Guadelupe fur seal, Island Fox, and Belding's Savannah Sparrow are all classified as rare or endangered species by the State of California, as now referenced in the text.

(38) Refer to Section III.I.5. for an expanded discussion of pollutant discharges in ASBS's. Note that we have proposed an alternative in Section VIII.A. to protect the ASBS's.

(39) The BLM is presently considering the establishment of a monitoring program to be implemented upon completion of baseline studies. The Environmental Protection Agency is formulating new guidelines for effluent limitations for oil and gas extraction. Refer to Section III.F.2. and Appendix 27.

(40) Refer above to response number (18) concerning the proximity evaluation.

(41) These corrections have been noted on the errata sheets accompanying the Graphics.

(42) Please see our response number 20 above.

(43) Placement and spacing of platforms as a result of the proposed sale would be dependent on oil fields discovered, water depth, and slant drilling distances. Refer to Section VIII.A.1. for a breakdown of numbers of platforms by proposed lease blocks. Also see the special stipulation on placement of structures in Section IV.D.

(44) Refer to Section III.I.4. and response (49) below.

(45) See response (49) below for a rough estimate of ship traffic.

(46) The U.S. Geological Survey statistics presented in this section did not include accidents from recreational boating, but referred only to accidents from oil and gas operations. We consulted the U.S. Coast Guard and they made a manual search of their

accident reports for 1974. There were a total of 327 boating accidents for offshore Louisiana and Texas, none of which concerned recreational boating and offshore operations (personal communication, June 1975, Lt.j.g. William T. Gamble, U.S.C.G., Office of Boating Safety, Washington, D.C.).

(47) Most of the exploration activity should occur within the first five years after the proposed sale. Some exploration is expected to occur after that to further define the fields. Exploratory and productive drilling is normally conducted 24 hours a day, seven days a week. For a typical exploratory well drilling will require approximately one to three months of continuous operations. The drilling vessel will remain in the drilling location until the well drilling is completed. During this drilling period, the crew and equipment boats will be traveling to and from the shore and the drilling vessels. The immediate area in which the exploratory drillships are working will have to be closed for certain periods of time, but not to routine traffic in shipping lanes. Testing equipment will not be towed during exploratory drilling. Signal-generating and recording equipments will be towed during the geophysical exploration to obtain seismic data. The geophysical exploration precedes the exploratory drilling and is generally performed prior to the lease sale.

(48) Liability for ship operation, under exploratory drilling would be no less than liability for other shipping operations.

(49) For platforms close to shore, the crew boat will make three trips a day to transport crew and supply to and from the nearby ports. Larger boats to transport larger equipments will make one trip a week. For platforms far from shore, the crew boat and equipment boats will make a trip about once a month. See Section I.D.1 and VIII.A.1. for discussion of the number of structures expected.

(50) The pipelaying and trenching operations will be around the clock until the job is completed. These operations should cover about one mile per day. The information in Section I. indicates that platforms could be used up to water depths of 1200 feet, and subsea structures for water depths, of greater than 1200 feet. See the response to the EPA comment on subsea technology.

(51) We agree except that in deep water or steep terrain the pipelaying technology may not make it possible for pipelines to be used.

(52) The information in the document is incorrect and should be changed from "and Los Angeles, 1.69 with 1.22 without", to "and Los Angeles 1.22 with and 1.69 without".

(53) To our knowledge, there is no data available on numbers of private boats fishing at a given time, but we would expect the loss to be comparable.

(54) The purpose of the proximity analysis for structures is to point out potential areas of adverse impact, and the areas so indicated will be considered by the reviewers and decision-maker. See the response to the EPA comments concerning the proximity evaluation.

(55) The chart on page 338 is a proximity table indicating the relative distance of tracts from a predetermined location and does not indicate interference between vessels and platforms. The U.S. Coast Guard and U.S. Corps of Engineers will not permit any platform construction inside the sea lanes. Refer to Section IV., especially IV.D. The number of platforms estimated for this proposed sale is from 14 to 60 (see Table I-1 in Section I.).

(56) The 14 billion barrels of recoverable oil and 28 trillion cubic feet of gas is the most probable estimate of WOGA for the lease area. U.S. Geological Survey's high estimates are 2.7 billion barrels of oil and 4.8 trillion cubic feet of gas.

(57) The text has been changed to indicate "Of these wells, 220 could be classified as offshore."

(58) Total gas production, including dry gas, is shown on page 678, Volume 1 of the Draft EIS. (See Section II.G.6.)

(59) This has already been considered in the rate since the data base reflects Gulf of Mexico lines of all ages.

(60) We would hope that these conditions could be easily averted. Refer to our response to the U.S. Fish and Wildlife comments on the pinniped rookeries and the Channel Islands.

(61) Section II.H.2. and II.F.2., the description and impacts on water quality sections, have been revised and expanded to reflect California formation water constituents.

(62) This has been proposed in Section VIII.A.6.

(63) Revenue sharing is a political decision and beyond the scope of considerations in this EIS. Congress is considering various means of implementing this concept.

(64) The Draft EIS section dealing with California's supply and demand, (Volume II, Section III.J.3) used the Resources Agency and Sherman Clark Associates Report as guidelines for supply and demand projections. BLM economists developed their own forecasts and presented them in table form on page 306, Volume II, and in the text page 307, of the Draft EIS. In its estimates, BLM included the impact of conservation efforts and potential OCS development. We feel that BLM's forecast is realistic and if anything, too optimistic in regard to California's future oil shortfall. We agree that the Resources Agency Report may no longer be valid in some areas. In order to update that report, BLM contacted Lester Hill, of the Department of Conservation, of the Resources Agency, whereupon he agreed to update the Resources Agency Report in time for the Final EIS. Later he informed us that revised consumption forecasts from the State of California have not been completed by the Resources Agency.

The U.S. Geological Survey reviews structure sites for geological hazards.

(65) OCS orders No. 7, 8, 9 cover spill containment equipment. Refer also to Section IV.E.4.a., special stipulations.

(66) We acknowledge the comment and offer it as a suggestion to U.S.G.S.

(67) Request taken under consideration.

(68) We do not have any evidence that California oil production is the cause of earthquakes. Seismic activity is discussed in Section II.A.4, and seismic hazards in Section III.A.3.

(69) These suggestions and corrections have been considered in the errata sheet attached to the graphics.

(70) We have proposed this as an alternative to modify the sale. Refer to Section VII.A.6.

(71) A discussion of landslides, both on and offshore, is given in Appendix 10.A.

(72) U.S.G.S. will be responsible for the approval of any exploration or oil operation activity. Prior to drilling, of any type, U.S.G.S. requires site specific, high resolution surveys to detect possible hazards that could occur as a result of an activity in a specific site.

(73) The discussion of offshore minerals has been expanded in Sections II.A. and II.J.4.

(74) A discussion of earthquake hazards has been added to Section III.A. As mentioned in previous comment, (Volume 1, page 45) U.S.G.S. is responsible for the review of geological hazards prior to any drilling and/or oil operation activities.

(75) These cultural and environmental factors were considered in the tract selection process. Refer to Section I.C.

(76) Section VIII.A. has been expanded to include other alternatives for future environmental protection.

(77) Section VIII.B. has been revised and expanded. Net energy considerations have been covered in Section VII.

(78) See Section IV.E.4. for the special stipulation on archeology and cultural resources. We have no control over shoreline resources.

(79) Section IV.E.4.a. has been revised and expanded.

(80) We have considered all these comments and have revised the text where appropriate. Much of the information presented was covered in the various impact sections of Section III.

35-58

STATE OF CALIFORNIA EDMUND G. BROWN JR., Governor

CALIFORNIA COASTAL ZONE CONSERVATION COMMISSION

1540 MARKET STREET, 2nd FLOOR
SAN FRANCISCO, CALIFORNIA 94102
PHONE: (415) 557-1001

June 20, 1975

William E. Grant
U.S. Department of the Interior
Bureau of Land Management
7663 Federal Building
300 North Los Angeles Street
Los Angeles, California 90012

Dear Bill:

On May 8 Richard Hammond of our staff delivered some comments on the Draft Environmental Impact Statement for Lease Sale #35, at the conclusion of which he indicated that our office would be sending more detailed review comments by May 23. I apologize for our not having met that deadline because of our very heavy workload, and I appreciate your staff's patience in waiting for these comments we now enclose. Our comments are less thorough than we would like, but our staff is simply spread very thin with revision of the Coastal Plan. These comments have not been reviewed by the Regional or State Coastal Commissions, due to a lack of time, but the comments are based on the adopted policies in the Commissions' Preliminary Coastal Plan.

I would like to reiterate our concurrence in the comments of other California agencies forwarded to you by the Resources Agency.

Very truly yours,

Joe Bodovitz

JOSEPH E. BODOVITZ
Executive Director

Enclosure

CALIFORNIA COASTAL ZONE CONSERVATION COMMISSION
1540 Market Street, San Francisco 94102 — (415) 557-1001

Comments of California Coastal Zone Conservation Commission Staff on Draft EIS for OCS Lease Sale #35

The Coastal Commission staff is concerned about potential conflicts between OCS-related development and activities and specific draft coastal policies. In the comments that follow, we first present the Preliminary Plan policy language, underlining that language to which our attention is particularly addressed. We then include comment regarding the sufficiency of the treatment given to the potential conflict by the Draft Environmental Impact Statement.

Policy 1: "It should be public policy at all levels of government to maintain, enhance, and, where necessary, restore marine resources. While the entire ecosystem must be protected, special protection must be given to areas and species of special biologic or economic importance including those identified by the State Water Quality Control Board's Areas of Special Biological Significance, by the State Department of Fish and Game, and in the Coastal Plan. Uses of the marine environment—for commerce, food supply, mineral extraction, and recreation—shall be carried out in a manner that does not diminish the productivity of coastal waters or threaten the existence of native species."

① Although this policy is a very broad one, it expresses a fundamental goal of the Preliminary Coastal Plan: not only to protect existing marine resources, but also to enhance and restore them. The Final EIS should speak to the likelihood that OCS activities may hinder such efforts at restoration in presently stressed areas.

The Draft EIS did include a list of the Areas of Special Biological Significance. The Final EIS should also identify and list the other types of special resource areas alluded to in Policy 1, using the Coastal Resources and Preliminary Plan Maps #15 through 22, and carefully scrutinizing the "Regional Amplifications" that follow individual policies, such as the South Coast Regional Amplification of Policy 1, found on page 22 of the Preliminary Plan.

In addition to identifying such areas, and threatened native species, the Final EIS should address the degree of OCS-related stress to which special resources and each species will be exposed, if the nominated leases are sold and developed.

Policy 4 (Page 23): "Maintain Commercial Fishing Facilities. Adequate berthing and support facilities should be provided for working commercial fishing boats. No existing commercial fishing port space shall be eliminated unless adequate substitute space is assured. [M-p11] New or major expansions of recreational boating facilities that might use up remaining areas suitable for commercial fishing facility development shall be permitted only if it can be demonstrated that present facilities serving commercial fishing in the area are adequate or that construction of needed additional facilities is assured." [New]

② The Draft EIS does identify potential conflict between OCS development and commercial fishing, but does not address the question of whether substantially increased small vessel traffic to service offshore drilling and production activities and facilities will conflict with the goal of maintaining adequate berthing and support facilities for commercial fishing. It is not clear where this issue might best be addressed in the EIS. It might be done in Section III, E. Impact on Commercial Fisheries.

Policy 6 (Page 25): "Maintain, Manage, and Restore Marine Water Quality. Water quality essential to marine life and human health shall be maintained, managed, and restored as a scarce and valuable resource. [M-p6] To this end:

a. Upgrade Existing Municipal and Industrial Discharges. All municipal and industrial waste discharges should be upgraded to meet the goals and standards of the 1972 amendments to the Federal Water Pollution Control Act. Implementation of this policy (requiring secondary treatment of wastes by 1977) should be reviewed if the weight of future scientific study discloses that such treatment is not needed for deepwater waste discharges. First priority in the coastal zone should be given to improving or eliminating discharges that adversely affect wetlands, estuaries, other biologically sensitive areas (see Policy 1), and ocean areas subject to massive waste discharge (e.g., between Newport Bay and El Segundo). Outfall sites and equipment should also be improved to provide maximum dispersal of discharged waste waters." [M-p6a]

③ Again, this policy emphasizes restoration of water quality, and singles out the area between Newport Bay and El Segundo as being particularly in need of attention. The proposed lease sale could lead to development resulting in a very high yield of formation water, drilling mud, and drill cuttings seaward of the area of special concern. The Draft EIS acknowledges that "at this time no valid information exists for mineral salt concentrations from oil field brines in the Pacific OCS waters", and that "high mineral content and low dissolved oxygen" would contribute to water quality degradation. In addition, the Draft-EIS acknowledges that some oil is entrained in formation waters discharged to the sea, and that such low-level oil discharge, which may be the most significant of all minor discharges, will be subject to EPA limitations based not on environmental protection needs, but rather "on technological feasibility". (Volume II, p. 6)

Before OCS leasing proceeds without knowledge of the nature of formation waters, and with an assumption that there will be oil discharged with formation waters, the Draft EIS should discuss whether disposal of formation waters, entrained oil, drilling muds, and drill cuttings will interfere with restoration of the water quality in the area between Newport Bay and El Segundo. The discussion on pp. 408-409 regarding that geographic area appears to deal only with a small part of this concern.

Policy 10 (Page 33): "Strictly Regulate Release of Oil and Other Toxic Substances. The release of fuel and oil, many chemicals, heavy metals, and other toxic substances into the marine environment shall be strictly regulated and adverse affects avoided. [From M-p8] Specifically:

a. Prevent Petroleum Spills from Affecting Sensitive Areas. Petroleum facilities (e.g., tanker terminals, refineries, and drilling operations) shall be permitted only where it can be demonstrated that: (1) under Coastal Plan energy policies the facility is necessary and there is no alternative location that would result in less environmental damage; (2) accidental spills will not adversely affect sensitive biological or aesthetic areas, as identified by State and Regional Water Boards, Department of Fish and Game, Department of Parks and Recreation, the Coastal Plan, or other appropriate public agencies; and (3) the best available technology and mitigation measures have been incorporated to prevent oil leaks and spills. [M-p8c]

b. Regulate Other Vessel-Related Pollution. State regulations should be established and enforced: (1) requiring vessel-fueling and deballasting equipment and practices that would eliminate spills and leaks to the maximum extent possible; and (2) prohibiting the manufacture and sale of sloughing types of boat antifouling paints." [M-p8b]

④ [10a] This Policy would suggest the Coastal Commission's preference for deletion of some of the nominated tracts in order to establish safety distances between offshore oil operations and sensitive biological or aesthetic coastal resources, as suggested in Section VIII, A. Alternatives to the Proposed Action.

In Volume II, page 439, the Draft EIS should ideally show a table for oil slick traveling time to shore under more severe conditions than 25 mph winds, and should acknowledge that containment equipment deployment response time will be longer under adverse conditions, with lower effectiveness.

⑤ [10b] It is clear that OCS development often creates a need for tanker loading facilities offshore of oil and gas separation and treatment facilities (e.g., the Exxon Santa Ynez project, and a Burmah Oil Co. tanker terminal expansion proposal to handle oil from California State tidelands). The Draft EIS discusses oil spill risk associated with tankering or barging crude oil directly from tracts in the Santa Rosa-Cortes South area. The Draft EIS does not discuss deballasting equipment or other operational standards for such tankering or barging. It does not discuss pressure to construct new tanker terminals, or increased loading activities at existing terminals, sure to result from OCS development, or ways to minimize the impact of such terminals.

Policy 26 (Page 57): "Preserve Significant Natural Areas and Rare Species. Ecologically significant areas of all coastal natural living communities shall be preserved by public ownership or other appropriate means. [L-p1] (See Policy 88 regarding the establishment of coastal reserves to protect such habitat areas and Part IV, maps and notes, for identification of areas). Rare or endangered plants (such as old-growth Coastal Redwoods and Torrey Pines), animals, and communities shall be protected from destruction or further degradation, and restoration efforts shall be agressively pursued. Activities shall be restricted and public access shall be carefully managed to prevent any disruption of the habitat values. New legislation to assist in the designation, preservation, and restoration of rare or endangered plants and communities (habitat types) should be adopted, patterned after or expanding existing laws mandating protection for endangered species." [L-p3]

The Draft EIS does identify rare and endangered species and designated unique biological environments, and the discussion in Vol. II, Page 437, of possible tract deletion in order to provide buffer zones presents an important policy alternative. The discussion does not make clear whether establishment of such buffer zones would give protection against disruptions other than oil spills and platforms themselves; for example, if a buffer zone were created to guarantee platform placement 6 miles from pinniped habitat areas, would helicopter overflights, supply launch routes, and pipeline placement be able to circumvent the habitats?

⑥ As suggested above, the discussion at Vol. II, pp. 438-439 about oil containment and clean-up ought to specifically recognize an extreme adverse condition scenario. Statements such as "...industry will have the capability in this area to contain spills" (pp. 438) has a misleading ring of certainty simply not justified by current state of the art containment and clean-up.

Again, the Preliminary Coastal Plan emphasizes the need for active restoration efforts in stressed habitat areas. The EIS should make clear that California's goals go beyond mere maintenance and protection of the current status quo, and should clearly identify any possible conflicts between the OCS program and restoration.

BLM's revision team should check the information presented in the EIS against the pertinent sections of Part IV, maps and notes, for further identification of coastal planning concerns and resource priorities.

Policy 29 (Page 58): "Minimize Habitat Damage Wherever Development Is Permitted. Where permitted in or near any area with natural habitat value, urban development, roads, logging, farm operations, or other human activities that reduce or affect natural areas shall be regulated to minimize the amount of natural land

and vegetation that is altered and to strictly avoid unnecessary impact of such activities on the life resources."

⑦ One serious omission in D-EIS Vol. II, Section V., Unavoidable Adverse Environmental Impacts,is the "effect on onshore natural areas from OCS-related onshore development". It is not clear, at this time how much of a problem this might be. But if, for example, OCS production were to come ashore in Santa Barbara County, and thereby lead to further pressures for development of processing, storage, and transfer facilities in coastal canyons, similar to those associated with Exxon's Santa Ynez-associated development in Las Flores Canyon, or if pressure develops for facilities on one of the Channel Islands, there will be unavoidable loss of natural habitat.

Policy 30 (Page 61): "Preserve Prime Agricultural Lands. All prime agricultural lands (as defined in the Williamson Act, Government Code Section 51201) and all lands now being used or appropriate for producing coastal-dependent and coastal-related crops shall be maintained in agricultural use [L-p12] except (1) where conversion is required for public service facilities such as airports, roads or coastal trails, energy facilities, or mineral extraction after it has been conclusively demonstrated that the proposed facility or activity is necessary and is consistent with other Coastal Plan policies, and there is no alternative location that would result in less environmental damage; [from I-p2 and new] and (2) small parcels within already urbanized areas, as provided in Policy 35. Where permitted, any such facility shall be sited and designed to minimize impact on resource areas." [L-p12]

Regional Amplifications

> South Central: In this region, many of the prime lands threatened by growing urbanization that shall be protected are: the Oxnard Plain, Ventura, Carpinteria, Goleta, and Oceano. A shift to greenhouse agriculture and to non-food production should also be considered by the coastal agency. [I-p5RA]
>
> San Diego: Because of the unique dependence of floriculture activities on locations along the North San Diego County coastline; because of the community character and visual amenities they provide; and because of their importance in State and national flower and bulb protection, these uses shall be preserved and protected. [L-p12RA]

Policy 31 (Page 62): "Maintain Non-Prime Agricultural Lands. Non-prime coastal lands that are now in use for agriculture or grazing, or that are suitable for use as agricultural or grazing lands, shall be protected for productive use and their open space values retained. The conversion of such lands shall not be permitted unless (1) it can be clearly demonstrated that continued or renewed agricultural use of the parcel is infeasible because of the location, size, soil type, or other characteristic, or (2) as specifically provided for prime agricultural lands above. [L-p13 and R-p1b] If the infeasibility is economic in form, before conversion is permitted all types of public subsidy and public acquisition and probable future needs for agricultural production should be examined. This should include the possible recombination of small parcels into larger units where agriculture can be profitably practiced. Such determination of infeasibility for continued or renewed agricultural use shall be made after consultation with local agricultural producers and appropriate professional advisors. The proposed alternate use must be fully consistent with other Coastal Plan policies." [L-p13]

Regional Amplifications

> Central Coast: Because of the special value of all agricultural lands within this region, their limited supply, and their significant contribution to the regional economy, non-prime agricultural lands shall be preserved unless it can be clearly demonstrated that there is no possible alternative location for a conflicting use. [L-p12RA]
>
> South Central: Use changes of non-prime agricultural lands, including grazing lands, on coastal terraces and hillsides between Ragged Point and Morro Bay, south of Montana de Oro State Park, and intermittently through Santa Barbara County to Ventura, such as erosion-prone conversions to avocados or development of energy-related facilities, shall also be given special consideration by the coastal agency. [I-p5RA]

⑧ The EIS should specifically report the emphasis in the Preliminary Coastal Plan on preservation of agricultural lands for agricultural use. Vol. II, page 271-272, reports that necessary onshore facilities will "in all probability be constructed in the Oxnard area in Ventura County", resulting in the conversion of about 1000 acres of farmland to industrial use. Although these lands are not within the permit jurisdiction of the Coastal Commissions, they are within the Coastal Zone, as described by Proposition 20. The policy proposed by the Preliminary Coastal Plan would allow conversion of agricultural lands for energy facilities after a showing of necessity, consistency with other plan policies, and lack of alternative site locations. If the EIS is going to identify the strong likelihood of industrial development pressure on the Oxnard area, which it does quite properly, it ought also to suggest other alternatives and the feasibilities thereof. (There are significant legislative efforts underway in Sacramento to mandate preservation of prime agricultural lands.)

Policy 43a (Page 73): "Major Pollution Sources. Major pollution-generating developments, including refineries, oil storage and separation facilities, freeways, new coal or oil-fired electric generating plants, and modernization or expansion of existing plants, shall meet all applicable Federal, State, and local air quality standards and all criteria specified in other Coastal Plan policies. (See also Transportation chapter and Policies 134 regarding electric power plants and 149 regarding refineries.) Such developments shall not be built in areas of the coastal zone designated by the Air Resources Board as critical air areas or in areas where coastal resources (such as resort or agricultural areas) would be adversely affected unless the coastal agency determines there is no alternative inland or coastal location where siting would result in less environmental degradation. Any approved project shall be designed and sited to minimize pollution, including use of best available technology." [L-p18a]

⑨ Vol. II, page 183 of the Draft EIS presents a brief discussion entitled "Impact on Air Quality". Although the section identifies areas of the Southern California coast that have been designated "critical air areas" by the California Air Resources Board, there is no clear statement of what that term means or why it might be of particular importance in planning for onshore treatment, storage, and transportation facilities. The EIS should properly point out that "critical air areas" relate to oxidant levels projected for 1978 to be in excess of health-based standards, and it should discuss the potential for fugitive hydrocarbons from OCS-associated onshore facilities to contribute to oxidant formation. This information should be obtained from the staff of the California Air Resources Board.

Policy 47 (Page 85): "Evaluate Development to Protect Coastal Viewshed. The entire California 'coastal viewshed' shall be considered a public resource. Within this area the designs for all development proposals shall be evaluated so that the viewshed quality can be preserved where existing natural or man-made areas are scenic, enhanced by the addition of attractive improvements, and restored by the removal of undesirable visual elements. (See Restoration of Coastal Resources chapter for restoration policies.) The viewshed shall be defined to include all land and water areas that can be seen from the sea, from the water's edge, from principal coastal access roads, trails, and railroads, from major lateral transportation corridors leading to the coast, as well as other areas specified by the coastal agency as being of statewide importance based on subsequent viewshed studies."[A-p1] [Note: This policy will be somewhat revised in the Final Plan]

Policy 48 (Page 86): "Development to Be Compatible with Highly Scenic Areas. New development shall be compatible with scenic areas and shall not be permitted to degrade natural, historical, or open areas of high scenic value.

Programs to protect these areas shall include development controls that require all future development to be visually compatible with the existing scenic values, public acquisition of some areas, and other techniques recommended in Part III, Carrying Out the Coastal Plan."

Vol. II page 227, and page 240, does present some discussion of the adverse impact platforms may have on scenic values. Although it can be conceded that quantification of the impact is not possible, the discussion still might present a precise description of what an oil platform looks like, its size, height above water, essentially industrial aspect, etc.

⑩ The discussion of mitigation of visual impacts at Vol. II, page 393-394 should include, in addition to platform beautification, the possibility of using subsea completion and production systems to eliminate visual impacts altogether, as has already been done extensively in operations on California submerged lands.

Vol. II, page 231, paragraph 2, opening sentence: shipwrecks resting in the surf zone would almost surely not be accepted as a "natural" part of the ocean scene.

The section on Mitigation measures should include a discussion of siting and landscaping techniques that can minimize the visual impacts of onshore facilities. (See Preliminary Coastal Plan Policies 53-61 for some suggestions.)

Policy 63 (Page 110): "Provide Public Access to the Coastline. Public access from the nearest public thoroughfare to the coastline shall be provided in and where appropriate separated from new developments. [R-p6e] Specifically:

a. Require Access Through New Developments. New developments shall provide public access by dedication of an easement or fee title to an access way to a public agency or by the recording of a deed restriction guaranteeing access across the property. However, where the coastal agency determines that public access is inappropriate such as where (1) adequate access exists nearby, (2) the topography makes access dangerous, (3) the proposed development is too small to include an access way, (4) the coastal resources are too fragile to accommodate general public use, or (5) public safety or military security precludes public use, the developer shall pay 'in lieu' fees (to be established as the cost of obtaining reasonable access at fair market value across the property) to a fund for the acquisition of public access at a suitable location elsewhere. To the maximum extent feasible, in lieu fees shall be spent in the region in which they are collected." [R-p6e]

⑪ The EIS should identify public access as a principal goal of the California coastal planning effort, and should comment on the extent to which that goal might be compromised by OCS-related onshore development, particularly where oil companies presently own tracts of land from the beach inland, as in Santa Barbara County.

Policy 65 (Page 111): "Priorities for Public Acquisition. Highest priority for public acquisition of coastal areas should be given to open space along urban waterfronts where visual and pedestrian access to the coastline is limited and to presently subdivided small lots in scattered ownership if development on them would impede public access by using up remaining road capacity or would unavoidably despoil coastal views. [from I-p11,A-p28c,A-p30] High priority shall also be given to areas of high recreational value (identified in Policy 75), areas proposed for park and reserve status (identified in Policy 88), and areas of high scenic value (identified in Policy 48)."

⑫ The EIS should identify public acquisition as a high priority of the California Coastal planning effort, and should comment on the compatibility between this goal and OCS development.

b. California Coastal Zone Conservation Commission

The Coastal Commission comments point out potential conflicts between OCS related development activities and specific preliminary draft coastal policies. A summary of the Commission's preliminary plan is included in Section I.B.4 of the FES and the text of proposition 20 is included in Appendix 25.

Disposition

(1) Policy 1 - Offshore development will be confined to the Federal OCS or not less than three (3) miles from any land area. See Section VIII.A. for various alternatives which have been proposed to protect the environmentally valuable coastal resources.

(2) Policy 4 - It is estimated that less than one hundred (100) vessels, 15 of which would be personnel carriers, would be required for a high case development of the proposed lease area. (See Section III.J.2.) A fleet of 100 vessels would be 1.7% of the size of the commercial fishing fleet (Section II.G.5.d.). It is unlikely that a conflict with the commercial fishing industry would result given the large number of berthing facilities in Southern California.

(3) Policy 6 - We have discussed the large water pollution impact from land sources in this area in Sections II.H.2. and II.F.2. of this EIS and have mentioned that any water quality degradation from offshore oil operations would have an additive effect. The discussion of mineral salt contant of formation waters has been revised (Section III.A.)

(4) Policy 10a - We have expanded and reviewed Section VIII.A. to include other alternatives to protect

pinniped rookeries, Areas of Special Biological Significance and aesthetic values. Furthermore, OCS Order No. 7 requires the lessee to maintain the most effective available pollution control equipment resulting from the current state of the art. This equipment must be available prior to the commencement of operations. Section VI.C. discusses various oil spill plans and equipment with an estimate of various capabilities. Refer also to the response to Dames and Moore's comments in Section IX.B.5.

(5) Policy 10b - The environmental problems associated with tankering and barging that could result from this proposed sale have been analyzed in greater depth in this FES and appear in Section III.A.

(6) Policy 26 - We have no way of knowing at this time whether any air traffic or boat traffic would trespass Areas of Special Biological Significance. Pipeline construction will be considered by BLM as discussed in Sections IV.D.2. and 3. We would discourage these disruptive activities from occurring in areas of pinniped rookeries, and if a pipeline right of way application were submitted proposing to enter these unique areas, we would give it serious and thorough scrutiny before deciding whether or not to approve it. OCS Order No. 7 requires the lessee to maintain the most up to date pollution control equipment. In Section IV.C. it is stated that spill containment is ineffective in seas of over 8 - 10 feet.

(7) Policy 29 - It is expected that only 100-200 acres of land would be required for new OCS related construction. This is not expected to pose a problem with the objectives of the Coastal plan. Also, the final Coastal Commission Plan enforcement body would have the authority to permit or deny construction of facilities in the Coastal Zone. The Channel Islands are only expected to be used, if at all, for pollution control staging areas. Other development is unlikely and would be under control of the appropriate owner, the zoning authority of the County in which it is located and the Coastal Commission or its successor agency.

(8) Policies 30 and 31 - The appropriate State and local agencies will, of course, determine whether and where industrialization will be permitted. We are unaware of any plans by industry to construct a refinery in the Oxnard area. The need for refinery capacity is a result of demand for petroleum products not as a result of OCS development. See Sections I.D. III.J.1-3. Sections III.F.1., I.2., J.1. and J.2., discuss potential impacts in the event a refinery is constructed during the life of the proposal.

(9) Policy 43a - Section III.F.1., Impact on Air Quality, has been substantially revised to include a more thorough analysis of potential air pollution impacts from proposed OCS development.

(10) Policy 48 - An alternative has been proposed in Section VIII.A. to protect the coastal viewshed. If adopted by the secretary this alternative would require the use of subsea completions in the proposed Santa Monica Bay and San Pedro tracts within 10 miles from shore.

(11) Policy 63 - A summary of the background of Proposition 20 and the Coastal Commission policies has been incorporated into Section I.B. of the FEIS. At this time we do not anticipate that OCS related development would interfere with the policy goals of the Coastal Plan concerning public access to the beach or acquisition of beach areas.

(12) Policy 65 - Refer above to Disposition 11.

In addition, we believe that the policy statement included in Policy No's. 136 and 145 relative to Federal OCS oil and gas leasing are beyond the purview of the State and would impinge on the jurisdiction and responsibilities of the Department of the Interior under federal law. Pursuant to the request of the California Coastal Zone Conservation Commission, the Department of the Interior submitted general comments on the Commission's Preliminary Coastal Plan. The Department's letter of comments dated June 25, 1975 follows immediately hereafter.

Jun 25, 1975

Dear Mr. Lane:

We have received the preliminary California Coastal Plan Hearing Draft, March 1975 and offer these general comments. An attachment to this letter provides a series of more detailed comments for consideration in the revision of the preliminary plan.

The Commissions have produced a well written, well organized comprehensive document. The overall scope of this plan should have stipulated lively discussions at the recent public hearings. The very thoughtful approach to the obtaining of public input is highly commended; these sessions should have provided you with substantial information for use in developing final recommendations for presentation to the Governor and the Legislature.

The draft gives substantial recognition and importance to managing coastal resources to maximize public recreational values. The alternatives for coastal regulation and management presented in the draft set forth a broad basis for the eventual development of legislative policy and direction for implementing a coastal plan by the State legislature.

Your draft includes a recommendation to use available data and reports from Federal agencies. We applaud this kind of recommendation in development of coastal zone management proposals because it provides tangible evidence of recognition by the State of the need for Federal-State coordination and cooperation at the field level. We are pleased to note that the Commissions have worked extensively with the National Park Service and U.S. Fish and Wildlife Service.

Although much of the material necessary to comply with requirements of the Coastal Zone Management Act of 1972 appear to be contained within the report, these comments recognize that the submission of the California Hearing Draft is not for the purpose of approval pursuant to that Act. It is, therefore, inappropriate for us to respond at this time in terms of analyzing any specific process and associated substantive issues from among the alternative approaches presented in the Hearing Draft.

A number of questions regarding the Hearing Draft's discussion of policy on outer continental shelf activities arose among reviewers. It should be understood that under the Federal Law regarding outer continental shelf activities (67 Stat. 462 et.sec.), the Department of the Interior cannot subordinate its reponsibilities to those policies emanating from California's development of a coastal zone management program which are specifically directed at Federal outer continental shelf lands.

We appreciate the opportunity to review the Preliminary Coastal Plan Hearing Draft. We believe that the California Coastal Zone Conservation Commissions are well on the way to achieving their goals.

Sincerely yours,

(sgn) Royston C. Hughes

Assistant Secretary of the Interior

Mr. M. B. Lane, Chairman
California Coastal Zone Conservation
Commission
1540 Market Street, 2nd Floor
San Francisco, California 94102

Enclosure

COMMENTS ON PRELIMINARY COASTAL PLAN

HEARING DRAFT - CALIFORNIA

The following detailed comments and questions are presented for your information and consideration in the revision process for the California coastal plan.

Page 14. The "Carrying out the Plan" section could be revised to eliminate an apparent inconsistency by indicating that specific recommendations have been made in "Recommendations for New Legislation," pages 312-316, and "Recommendations to Other Agencies," pages 317-321. Verification that recommendations are proposed is again found on page 395, first paragraph.

Page 17. In reference to Part II of the plan (Findings and Policies), it is not clear what the effect of this plan will be on established and planned Federal programs. While each Federal agency is to conduct its activities in the coastal zone in a manner consistent with approved State management programs to the maximum extent practicable, the mechanics of doing this are not clearly defined. Guidelines on cooperation between doing this are not clearly defined. Guidelines on cooperation between Federal agencies and the Coastal Zone Commission should be provided.

Page 19. Continental shelf mineral resources consisting of nodules containing manganese, copper, and nickel could be described in a paragraph in the "Ocean Resources Management" section. The section could also indicate that Federal offshore continental oil leases will preclude mining in the petroleum drilling and pipeline areas for 20-40 years.

Page 19, paragraph 1 - In this statement we suggest it be recognized that the continental shelf is presently highly exploited and does not offer potential for increased harvest. The last sentence should say that 90 percent of the present world's fisheries are concentrated in this zone.

Page 22, South Coast, line 7 - We suggest that the words "increasing fisheries pressures" be changed to "highly exploited fish populations." We believe this would be a more meaningful explanation.

Page 24, Waste Discharges, paragraph 1 - We suggest that last sentence in this paragraph be changed to read: "Such discharges, if not treated and managed properly, can seriously impair water quality, which is essential to the health of marine as well as human life."

Page 25, Policies - The discussion here should stress that waste water should be managed in such a way that it could be beneficial to the marshes and shoreline development. The statement on the need for secondary treatment by 1977 is excellent and should be reinforced.

Page 27, Section 7 - Wherever possible, incentives should be encouraged to have coastal developments promote reclamation and use of waste water as a source of "new" water.

Page 27, Section B - Do all port and berthing docks have sufficient sewage system hookups or holding tanks to handle present or future waste from large ships?

Page 29, Section 9b - This policy should consider the regional impact of not allowing once through cooling of powerplants on the coast.

Page 31, paragraph 5 - It is stated that "Of all the existing or proposed Federal offshore production areas - on the Gulf of Mexico, Atlantic, and Alaskan continental shelves - only California's producing area is located close to a large human population (10 million plus) that is directly affected by the environmental, aesthetic, psychological, and economic effects of offshore production." This is a very subjective and questionable assertion. The proposed leasing area in the Middle Atlantic parallels the most densely populated corridor in the nation.

In the section on oil and toxic spills (p. 31-36) it is suggested that some mention be made of the following two subjects, or a reference to a later section in which these subjects are treated: (1) the relation between type of oil transport and risk of spills, including an encouragement to the development of those transport facilities or methods that are lease hazardous (for example, pipelines versus barges, and large tankers versus small tankers); (2) construction methods, facility installations or regulations recommended to reduce risks, such as pipeline burial, block valves, or cutoff valves.

Also, will the fund described in section 11a (pages 34-35) provide for cleanup costs and damages resulting from oil discharging naturally from oil seeps? (See page 31 under "Several Sources of Oil in the Sea".)

Page 35 - Is this two-cent fee also to be collected from each barrel of oil entering through those deep water ports that already have a two-cent per barrel Federal tax? (Page 32, b. Federal).

Page 36 - In the section on runoff (p. 36-36) it is suggested that some mention be made of the advisability of providing buffer strips to protect wetlands from adverse impacts of runoff, or a reference to such measures in following sections (for example, p. 39, #14). Policies presented suggest measures to control runoff at its source, but protection of fragile resources from components in runoff in the interim is also important. Although this fact is recognized in the regional amplifications for the North Coast (p. 37), a more general policy of that type appears advisable for runoff with respect to wetlands anywhere.

Page 38 - In the section on Coastal Waters, Estuaries and Wetlands (p. 38-43), it may be equally important to recommend and to provide for means to enforce existing or new regulations and land-use plans, as in the case of oil and toxic spills, discussed in the previous section. For example, a landfill of about 900,000 cubic yards was recently proposed on 21 acres of private land alongside San Rafael Bay, near Golden Gate, apparently for purposes of residential use or light industrial use, whereas the General Plan called for water-oriented recreational or open-space uses in most of the area under consideration, specifically calling for reservation of a shoreline strip at least 500 feet wide for such uses.

Page 39, paragraph 1 - A principal concern of effects of dredge spoil disposal is exposure of benthic organisms to contaminated materials that could adversely affect or curb their ability to satisfactorily complete their life cycles. The last sentence should be amended by adding, "and also exposes them to toxic materials that may have chronic effects on their survival."

Page 42. - We suggest that landfill, diking and dredging activities in coastal waters should consider the possibility of offshore, as well as onshore, cultural resources. Underwater remote sensing techniques using photographic and electronic methods should be used to survey areas to be dredged and competent professional archeologists could inspect all spoil disposal areas and locations for shore support activities such as roads, buildings, parking lots, pipelines, etc.

Page 42, paragraph 2 - We agree that equivalent compensation areas of comparable biological value should be completed or at least well under way before land filling or diking commences. While in-lieu fee could be dedicated to an appropriate agency under some circumstances, we suggest that a better way would be habitat restoration and development funded by the permit applicant.

Page 45. - It is suggested that the following be added to par. 1: "Harbor-protection structures (piers and revetments) can deflect littoral drift of sediment away from shores, and dredging of sediment from harbor entrances can combine with this to rob beaches of sand and expose nearby shoreline property to destructive erosion." For example, recent studies along eastern Lake Michigan showed that near at least two harbors, natural shoreline erosion rates of 1.5 feet per year were increased to about three feet per year by the foregoing effects, attributable to Federal shoreline structures.

Page 47, Coastal Streams - Do coastal streams include the Sacramento and San Joaquin Rivers?

Page 49, Section 20 - This policy does not clearly set forth what authority the Commissions would seek in this area. Some serious thought should be given to clearly defining the Commissions' responsibility in this area because of the plethora of agency controls already in existence. There already are pending lawsuits and some conflicts resulting from overlapping jurisdictions among the above agencies and from the impact of those jurisdictions on locally owned water rights. It would not appear that the addition of another layer of regulations would do much toward clearing up a situation that already is confused.

Page 55. - It is suggested that an item f "Prevent Subsidence," be added. Although the relation of ground-water withdrawal to subsidence has been noted on page 53, par. 2, no policy directly addresses that problem on pages 54-56.

Page 66. - The inference in the subheading, "Improper Management Has Reduced Forest Resources", is that poor forestry has been guilty of the dimunition of the forest base. Rewording is needed. California's rapidly expanding population has been the prime cause of encroachment on the forest, range, and agricutural lands within the coastal zone. "Forestry" should not be confused with "logging."

On the same page, in reference to the policy to "Protect Coastal Forest Resources", timberland and timberland conversions are activities legally and best regulated under both the California Forest Practices Act and the Registered Professional Foresters Licensing Law. Under the Forest Practices Act, the State Board of Forestry is the designated lead agency in forestry matters.

Page 68. - The following recommendations concerning Items 38 and 39 are offered for consideration:

> Provide economic incentives, and legal protection, to private landowners who open parts, or all, of their lands to public access and recreation.
>
> Provide economic incentives to encourage management of private land for fish and wildlife.

Provide for environmental planning between the Coastal Commission and the Forest Products Industry on a co-equal partnership basis for timberlands.

Provide for "recreation-rotation" use of timberlands to allow for both recreation and forest products harvesting on the same land.

Page 79, Item 46a - We recommend that the systematic survey of the coast be expanded to include estuaries, rivers, coastal lagoons, and coastal waters. Vessels of historical significance are known to have sunk off the California coast over the past 400 years. Excellent evidence that the coast area was inhabited at least as early as 12,000 years ago is now available, and sea level at that time is estimated to have been at least 140 feet lower than present. Therefore, submerged archeological sites could be expected anywhere in the area covered by this plan.

Page 80, Item a - We recommend that any proposed State legislation to provide tax relief to owners of historic places should also include other cultural sites or districts.

Page 80, Items b and c - All efforts should be made to preserve cultural resources by avoidance, changing routes, or redesigning projects, if necessary. If this is impossible, mitigation by excavation should be considered only as a last resort. Cultural resources are nonrenewable; therefore, their loss due to any cause, including salvage archeological excavation, still results in an irretrievable commitment of cultural resources and a reduction of the data base for future use. Thus, salvage should not be considered as a substitute for the avoidance of impact on archeological resources.

Page 112, Policy 66 - The Coastal Plan advocates using, along with other techniques for gaining public use, transfer-of-development rights, the institution of which could be helpful in cases where outright rejection of development applications would cause undue hardship to present landowners or occupants, and where substantial ill will might otherwise be engendered toward the Coastal Agency and conservation-by-public-ownership movement.

Page 117, paragraph 1 - It appears that hunting, by its omission, is not being considered as an acceptable form of recreation in the Coastal Plan. Historically the coast has always been used by hunters and this use should continue to be acceptable in nondeveloped areas and during periods when other coastal activities are minimal. Hunting should be discussed in the draft and acknowledged as a potential form of recreation in the coastal plan.

Page 118, paragraph 5 - The sentence, "In some areas, selective hunting and fishing of certain species can deplete these resources," should either be eliminated or expanded. For instance, properly managed fish and wildlife populations will never be depleted by sport harvest of surplus animals. We agree that commercial fishing has depleted certain stocks. Wildlife species can be forced from an area through environmental alteration. Human activity, harassment, and disturbance can be just as responsible for decline of an area's wildlife populations.

Page 125, Policy 85. - We suggest that this policy could reflect the particular fragility of biological resources in the intertidal zone, particularly the gently-sloping beaches supporting edible clan populations in areas such as Pismo Beach in San Luis Obispo County.

Page 132 - The subheading entitled "Coastal Trails System - - Findings" indicates a need to "Increase Bicycle Riding Facilities in the Coastal Zone'. Subsequent discussion, however, is unclear if the plan favors construction of a separate bikeway system or widening and improvement of existing roadways, e.g. State Highway 101. While separate bicycle paths may be desirable in settings such as coastal urban areas or in specific park units, the distances between such management units will usually be best covered on or along existing roadways.

We agree that improved facilities for bicyclists are needed and should be encouraged within the coastal zone. It has been our experience that in most cases, the development of separate bikeways in the coastal zone would consume a greater amount of land, resources, and habitat and cause a greater adverse impact than the improvement and development of adequate shoulders on existing roadways. In addition, the cost of developing and maintaining separate bikeways would be extremely expensive compared to the cost of improvement or development of roadway shoulders.

Page 137, Policy 95a - This policy recommends increasing the Land and Water Conservation Fund, utilization of oil and gas royalties and earmarking funds for coastal facilities. We assume "recreation facilities" refers also to land acquisition, the major destination of L&WCF funds. Currently about two thirds of the fund is made up of receipts from offshore leasing. Legislation now being considered in Congress could greatly increase the fund and the utilization of royalties. Criteria for distribution of the fund would be prescribed by law.

Page 139 - The chapter on Transportation apparently makes no mention of pipeline transportation, nor does that subject appear to be adequately covered by the following chapter on Energy, with the exception of a brief discussion of LNG pipelines (p. 243 f). Since pipelines carrying oil, gas, sewage, water, and plant effluents together pose significant potential environmental impacts, it appears advisable to include policies with regard to them.

Page 148, Policy 104 - It is suggested that a regional amplification of Policy 104 would be advisable for the South Coast, or that a general policy would be appropriate stipulating that the planning of coastal land transportation facilities (highways and public transit) should give emphasis to geologic problems and other environmental constraints in coastal areas having known problems. For example, the Transportation Plan for Santa Barbara County evaluated such hazards as ground shaking, tsunamis and seiches, liquefaction, high ground water, slope stability (landslides, expansive soils, soil creep and compressible-collapsible soils), flood hazard, and special needs for protection of local water resources. Alternatively, a reference might be included to a later section covering such a policy.

Page 157 - It is suggested that the following statement be added at the end of par. 5, amplifying the finding that analysis is needed to determine future port development needs: "The analysis of port needs should give environmental and social costs and benefits equal weight to economic and engineering costs and benefits." Analyses in the past have overemphasized the latter factors at the expense of the former factors.

In the discussion under the heading "No new general ports are needed" (p. 158, par. 2) it is suggested that this be qualified, as it is in Policy #116 (p. 159), by a statement such as "except for possible specialized facilities such as petroleum or liquefied natural gas tanker terminals." The extensive discussion on tanker terminals presented later in the report (p. 228-236) indicates that new terminals or ports may be needed. The Corps of Engineers' West Coast Deepwater Port Facilities Study concluded that greatest cost effectiveness for deepwater ports suitable for tankers over 250,000 deadweight-tons would be achieved by developing offshore deepwater ports or terminals off Pt. Fermin (near Los Angeles/Long Beach area) and off Golden Gate.

Page 163 - In this portion of the report, ambitious programs for energy conservation, development of alternative energy sources and controls on energy facility siting and design are included in the plan. Under the proposed plan, new electric plants in the coastal zone will have a difficult time gaining approval. Inland sites, which would require large quantities of cooling water, would be favored. The secondary impact of moving the plants from the coastal zone to the inland area should be rigorously assessed.

Page 177, last paragraph, and p. 178, beginning paragraph - We fail to find any substantiation of the direct electrical energy consumption figures given in this paragraph. The caption for this section indicates that aluminum requires six times more electrical energy to produce than steel. Calculations based on the figures within the section would indicate that aluminum production requires only 3.9 times more electrical energy than does steel. In any event, a comparison of only direct electrical energy consumption is fallacious because while electrical energy is practically the only energy used to make stainless steel. Such comparisons are valid only if total energy consumption is considered.

Page 194 - In the discussion of geothermal power as a potential source of "up to 15 percent of the additional electrical energy capacity required by 2000", some additional electrical cautions may be advisable. The geothermal plant at The Geysers is of the dry-stream type, while the potential sources in the Imperial Valley (p. 195, tabulation) are of the hot-brine type. The conclusion that "the geothermal fuel cycle is less polluting than that of fossil or uranium fuels" (p. 194, par. 5) may be based on the dry-stream type, but even for that type of geothermal source, the environmental impacts do not appear to have been adequately analyzed as yet.

Page 210, first paragraph - This section notes that increased onshore production is dependent on improved recovery techniques and on higher oil prices. However, there could be additional comment on the effect of increased inflationary costs. The likelihood that the oil depletion allowance of 22 percent will be cancelled could also be mentioned. The total impact of these economic forces could mean a decrease in exploration, drilling, pumping, and secondary-tertiary oil recovery.

Page 211, paragraph 3 - The Department of Interior has included a sale off central and northern California in its five-year leasing schedule. However, there has been no call for nominations or lease proposals for this area as alleged in this paragraph. The northern California, Washington, Oregon sale is very tentatively scheduled for late 1978. Industry has shown very limited interest in this area, which is considered to have the least productive potential. Previous drilling in this general area several years back was not encouraging.

Page 211, last paragraph - With reference to the last paragraph on page 211, Federal regulations related to casing and blowout prevention programs were modified following the 1969 Santa Barbara blowout. The OCS Orders are neither less stringent nor less effective than the California regulations. The Federal Government is cooperating with the state to develop the best possible requirements and to promote uniformity in offshore oil and gas regulations. On page 213, par. 3, it should also be added that Shell Oil Company has contracted for two platforms for installation in 1,000 feet of water in the Gulf of Mexico.

Page 215, Policy 136 - In the second sentence, shall is used where should is indicated by the definitions on page 16, number 5.

Page 260 - It is suggested that wastewater treatment plants, pumping stations, and related facilities might be added to the types of public-service facilities that are likely to warrant geologic investigations by cities and counties to assure that design and construction techniques give adequate allowance for geologic hazards (p. 260, par. 1, last 3 lines). The Environmental Protection Agency's final environmental statement for the San Francisco Wastewater Master Plan by the City and County of San Francisco made special note of the need for pre-design geologic investigations to minimize geologic hazards to treatment plants, offshore outfall lines, other pipelines, retention basins, and pumping stations.

Page 295 - Regarding governmental structure to carry out the plan, consideration should be given to an organizational structure which would allow for local involvement in decision-making while providing for a state agency responsible for interregional actions and decision appeals, and for assessment of needs and priorities. All existing regional commissions favor the continuance of a State Coastal Commission, although their positions regarding its strength relative to regional commissions vary. We recognize the vital necessity of incorporatiing State and local views and needs into the planning process. The final Coastal Plan should also clarify the relationship between the State and Federal Government on the issue of "federal sovereignty." At issue is the ability of the state to control or restrict use and/or development of federal lands within the coastal zone.

There is also concern that there may be a tendency to allow regulatory and/or quasi-regulatory agencies to avoid the assessment or evaluation of impacts or trade offs in the preparation of a regulatory or management plan and then to recommend the plan to the State Legislature for adoption. Even though such an analysis may not be clearly required of the planning effort, it seems appropriate that those plans be subjected to the analysis required by the National Environmental Policy Act prior to their adoption by the Commissions or their recommendation to the legislature.

Page 301 - It is suggested that the following be added to the list of governmental programs needed to implement coastal restoration (p. 301): "inventory of mineral resources (particularly sand and gravel) in the coastal zone, survey and mapping of areas of potential geologic hazards, and public dissemination of these findings and of resulting advice and policies."

Page 312, Marine Environment and Coastal Environment - It is suggested that legislation be recommended to require zoning or land use plans to include mineral resource areas. Several discussions in the text indicate the desire for such legislations. For instance, page 71, first paragraph, includes "near-city mines and reserves shall be protected from urban encroachment"; page 48 "Policy," establishes watershed management including complete mineral resource inventories; page 38, the Division of Mines and Geology "should inventory the state's mineral resources" and, page 327, Mineral Resource Areas are recognized and shown on the Resource Maps. On page 211, in the first paragraph, the precedence of mineral reserve areas has been set by the establishment of petroleum sanctuaries on the state's submerged land. Why not other mineral resources? The legislation would make mandatory that zoning of mineral areas or preserves is to be included in all land use plans.

Page 379, paragraph 3 - It is stated, "Other than the historic Point Loma Lighthouse and Cabrillo National Monument area, there are no manmade structures or environments that would meet the criteria for manmade resources." We fail to see the distinction between, for instance, the Old Point Loma Lighthouse (which is included) and the 80-year old operating Coast Guard Light (not included) relative to the term "manmade resources." Other significant manmade resources that deserve consideration include Fort Rosecrans National Cemetery, the original site at Ballast Point), and the remnants of coastal defense installations on Point Loma, to name a few.

Page 379, paragraph 4 - The long-term perpetuation of the undeveloped military lands on Point Loma is by no means assured. We are aware of a long range plan by the Naval Electronics Laboratory Center which calls for expansion of center activities and construction in the former "open spaces" on the west slope of Point Loma.

Page 386 - The North Coast, Map 1, gives an incorrect boundary for Redwood National Park. Also, the name Redwood National Park should be relocated because, as presently labeled, it is within Six Rivers National Forest.

Page 408 - In the supplemental notes for the San Diego Coast, Map 23, Item 27 under Habitat Areas should indicate 144 acres within the Cabrillo National Monument because 56.6 acres of former military land was added by Presidential Proclamation on September 28, 1974.

ANALYSIS OF
DRAFT ENVIRONMENTAL IMPACT STATEMENT
FOR
PROPOSED 1975 OUTER CONTINENTAL SHELF OIL AND GAS LEASE SALE OFFSHORE SOUTHERN CALIFORNIA

(O.C.S. Sale No. 35)

Presented on Behalf of the Southern California Council of Local Governments Concerned With the Federal Proposal for Accelerated O.C.S. Oil and Gas Development Nationwide and in Southern California

by

TOM BRADLEY, Mayor

Staff:

Norman Emerson
Graham Smith

BURT PINES, City Attorney

Staff:

Jan Chatten-Brown
Gail Gordon
Ginger Lew
John McDermott
Patricia Smith

THE SOUTHERN CALIFORNIA COUNCIL OF LOCAL GOVERNMENTS CONCERNED WITH THE FEDERAL GOVERNMENT'S PROPOSAL FOR ACCELERATED O.C.S. OIL AND GAS DEVELOPMENT NATIONWIDE AND IN SOUTHERN CALIFORNIA

The Southern California Council of Local Governments Concerned with the Federal Proposal for Accelerated O.C.S. Oil and Gas Development was formed by a group of Mayors, Councilpersons and other governmental officials. The purpose of this Council was to discuss the proposals of the Department of Interior in regard to expanded O.C.S. development nationwide and in Southern California.

The members of the Council include:

City of Los Angeles
City of San Diego
County of San Diego
City of Beverly Hills
City of Santa Monica
City of Santa Barbara
County of Santa Barbara
City of Riverside
City of Newport Beach
City of Torrance
City of Palos Verdes Estates
City of Rancho Palos Verdes

City of Laguna Beach
County of Orange
City of Huntington Beach
Southern California Association of Governments

Due to the press of time, this Analysis could not be fully circulated to all members of the Council to receive formal ratification.

TABLE OF CONTENTS

PART ONE:

LEGAL ANALYSIS

Page

I SUMMARY 2

II REQUIREMENTS FOR A LEGALLY ADEQUATE E.I.S. 10

III PREMATURITY OF SOUTHERN CALIFORNIA O.C.S. ENVIRONMENTAL REVIEW PROCESS 19

IV INADEQUACIES OF THE E.I.S. 37

- A. ISSUES AFFECTING BOTH NATIONWIDE AND SOUTHERN CALIFORNIA NOT DEALT WITH ADEQUATELY IN EITHER E.I.S. 37
- B. ENVIRONMENTAL IMPACT OF SOUTHERN CALIFORNIA O.C.S. LEASING 41
    - 1. Lack of Sufficient Information 41
    - 2. Failure to Measure Cumulative Impacts 48
    - 3. Need for Regional Analyses of Five Distinct Areas 50
    - 4. Need for Further Study 51
- C. UNAVOIDABLE ADVERSE IMPACTS 53
    - 1. Oil Spills - Environmental and Economic Effects 53
    - 2. Onshore Land Use Impacts 62
    - 3. Degradation of Air Quality 65
    - 4. Economic Losses to Local Governments 71

Table of Contents (Cont'd) Page

D. ALTERNATIVES INADEQUATELY CONSIDERED 76
  1. The Alternative of Conservation 76
  2. Alternative Energy Sources 80
  3. Splitting Exploration and Production 84
E. MITIGATION MEASURES NOT FULLY CONSIDERED 86
  1. No Nearshore Drilling 86
  2. Economic Guarantees to Local Governments 94
  3. Improved Drilling Regulations and Containment Capability 94
F. CONCLUSION 101

PART TWO:

SCIENTIFIC ADVISORY COMMITTEE REPORTS

MEMBERS OF THE SCIENTIFIC ADVISORY COMMITTEE 105
I AIR QUALITY 106
  Dr. Richard L. Perrine 106
  Dr. James N. Pitts, Jr. and Dr. Barbara J. Finlayson 114
II CHEMICAL OCEANOGRAPHY 132
  Dr. I. R. Kaplan 132
III SEISMICITY 139
  Dr. James H. Whitcomb 139

Table of Contents (Cont'd)

		Page
IV	MARINE BIOLOGY	164
	Dr. Malcolm S. Gordon	164
	Dr. J. T. Enright	173
V	MARINE BOTONY	187
	Dr. David J. Chapman	187

PART ONE:

LEGAL ANALYSIS

I. SUMMARY

The following is a summary of the detailed analysis of the tract specific draft E.I.S. for Southern California O.C.S. development. This analysis has been prepared by and on behalf of the Council of Local Governments Concerned with O.C.S. Development, for presentation to B.L.M. as a portion of the comment and input to be given by the participating jurisdictions during the public hearing and review process.

The Analysis contains not only a review of the tract E.I.S. by the participating public entities, but also a critique of various technical aspects of the document prepared by the Scientific Advisory Committee. This Committee was formed at the request of the Council to advise the participating jurisdictions as to the accuracy of the data included in the E.I.S., the additional data which should be provided, the additional scientific studies which should be undertaken, and related matters.

Below is a short review of the matters contained in the legal analysis.

Requirements for a Legally Adequate E.I.S.

The National Environmental Policy Act of 1969 (NEPA) sets forth specific requirements for the timing and contents of an environmental impact statement. Case law establishes that under NEPA federal agencies have a duty to give full good faith consideration to environmental values in decision-making. Indeed, the procedural requirements of NEPA are subject to a strict standard of compliance. Measured against these standards, the tract specific draft E.I.S. for Southern California O.C.S. leasing is legally deficient in the following ways:

1. It was released (and the review process initiated) before completion of a final, legally adequate, program E.I.S. on accelerated leasing nationwide and a decision to go forward with the national program is made.

2. It reflects a failure on the part of Interior to develop the data on marine resources necessary to an intelligent analysis of the impact of O.C.S. development, or to conduct appropriate research to provide more definitive answers about critical "unknowns" about those impacts.

3. Fully consider and discuss in sufficient detail the primary, secondary and cumulative effects of O.C.S. development, supported by empirical data or scientific authorities.

4. Fully consider and discuss alternatives to the proposed action and measures to mitigate its impact.

5. Address the numerous other major issues discussed in this analysis.

Prematurity of Environmental Review Process for Southern California O.C.S. Leasing

The tract specific draft of E.I.S. for Southern California offshore oil and gas leasing was prepared and issued in advance of two critical stages in the decisional process: (1) the completion of a final programmatic E.I.S. on O.C.S. development nationwide containing all relevant comment on the environmental effects of the proposal and (2) a decision on whether to lease nationwide and if so, when, where, and according to what safeguards. The tract document is legally insufficient per se in its present form because it fails to consider the environmental information contained in the yet to be released final program E.I.S. or the character of any decision to lease.

O.C.S. Issues Not Adequately Covered in Either the Draft Program E.I.S. or Draft Tract E.I.S.

Several issues relevant to the impact of expanded O.C.S. development nationwide and equally applicable to Southern California O.C.S. leasing have not been adequately discussed in either the draft program E.I.S. or the draft tract E.I.S. Among these issues are the following:

1. Need for a coherent national energy policy.
2. Discussion of relative environmental impacts of O.C.S. development nationwide and in Southern California.
3. Degradation of air quality.
4. Onshore land use impacts.
5. Economic losses to local governments as a result of oil spills and need for increased municipal services to support onshore activities.
6. Coordination with California Coastal Zone Conservation Commission.

Until these issues are adequately discussed in one document or the other, the environmental review process for Southern California leasing will not be in compliance with NEPA.

Lack of Sufficient Information About the Environmental Impacts of Southern California O.C.S. Leasing

There are many "unknowns" regarding the environmental impacts of O.C.S. development. No adequate baseline information has yet been developed with which an intelligent and reasoned analysis of the effects of O.C.S. development can be made. There is a lack of information about the long-term effects of oil pollution on the marine ecosystem, the possible carcinogenic effects of such pollution and the uptake of pollution and carcinogens in the marine food chain. There is a lack of information on the amount of time necessary for biological recovery after an oil spill, a matter of great concern in view of the fact that Interior concedes in its high case estimates the possibility of oil spillage every year in an amount equivalent to the Santa Barbara spill. The tract E.I.S. also fails to consider the cumulative impacts of all energy related development in Southern California. Finally, there appears to be a need for separate consideration of the five, geographically and environmentally dissimilar, regions proposed for leasing in Southern California. NEPA and case law interpreting NEPA require that additional research and study be done to fill in the information gaps on the environmental consequences of O.C.S. development.

Unavoidable Adverse Impacts

The tract E.I.S. fails in several respects to give a complete and thorough discussion of the unavoidable adverse impacts of O.C.S. development offshore Southern California. Little attention is given to the Santa Barbara experience in considering the awesome environmental and economic consequences of a major oil spill. This is a particularly serious omission in view of the fact that Interior postulates, in its high case estimates the equivalent of one Santa Barbara spill per year. Almost no consideration was given to the degradation of air quality which will occur, particularly as a result of increased refinery activity. Neither is there a full discussion of onshore land use impacts or of economic losses that will be suffered by local governments from oil spills and increased municipal services to support onshore related activities.

Alternatives Inadequately Considered

Another defect in the tract E.I.S. is its failure to adequately discuss alternatives to the proposed action. Although everyone agrees on the importance of energy conservation, Interior has yet to discuss it in concrete terms. In our analysis of the program E.I.S., we presented an elaborate conservation proposal as an alternative to O.C.S. development.

We urge Interior to give that proposal serious consideration. We also urge that Interior provide a more adequate treatment of other energy alternatives and the possibility of splitting exploration from production.

Mitigation Measures Not Fully Considered

An extremely important mitigation measure not discussed at all in the tract E.I.S. is a moratorium on all development in nearshore waters such as Santa Monica Bay. Drilling would occur in outer areas first, with nearshore drilling permitted, if at all, only when more complete information about the effects of offshore drilling is developed. Instead, Interior plans to lease first in nearshore waters, despite the risk to the extensive recreational and commercial use of the Southern California coastline, particularly in the Los Angeles-South Bay area. We urge that the leasing schedule be reversed, with outer areas leased first. We also urge that economic guarantees be made to local governments and other interested parties prior to any lease sale in order to offset the cost of oil spills and increased municipal services. Finally, we recommend that consideration be given to improved drilling regulations and containment mobilization capability.

Conclusion

For the reasons above, we conclude that the tract specific draft E.I.S. for Southern California O.C.S. leasing does not meet NEPA's strict standards of compliance. We request that an additional opportunity for review and comment on the E.I.S. for Southern California leasing _after_ release of a final, legally adequate, program E.I.S. and a decision to go forward with that program. We recommend that baseline studies be completed and that further research be done on the "unknowns" in connection with the impacts of oil pollution on marine ecosystems. Finally, we urge that a new draft tract specific E.I.S. be issued which addresses more fully the issues raised herein. Only then will the mandates of NEPA be satisfied.

II. THE REQUIREMENTS FOR A LEGALLY ADEQUATE E.I.S.

The National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. § 4321 et seq., establishes a national environmental policy whereby it is the continuing responsibility of all federal agencies to use "all practicable means and measures . . . to create and maintain conditions under which man and nature can exist in productive harmony." In order to implement that policy, the Act contains important procedural requirements which are designed to ensure that all federal agencies give full consideration to environmental values in their decision-making processes.

1. The Duty to Consider Environmental Factors

Section 102(2)(B) requires all agencies of the federal government to:

> ". . .identify and develop methods and procedures . . .which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical consideration." 42 U.S.C. § 4332(2)(B). (Emphasis supplied.)

To implement this duty to consider environmental factors, §102(2)(C) requires that "to the fullest extent possible" all federal agencies must prepare a detailed environmental impact statement in connection with "major federal actions significantly affecting the quality of the human environment." 42 U.S.C. §4332(2)(C). The E.I.S. must discuss.:

(i) The environmental impact of the proposed action,

(ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,

(iii) alternatives to the proposed action,

(iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and

(v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

42 U.S.C. §4332(2)(C).

CEQ guidelines further provide that the statement must consider the cumulative impacts of proposed agency actions. 40 C.F.R. § 1500.8(a)(1).

Prior to making a detailed statement, moreover, a federal agency must consult with and obtain the comments of other federal agencies affected by the action. Once a draft impact statement is prepared, it must be circulated to all appropriate federal, state and local agencies for review and comment. All comments must be incorporated into a final statement which is then to "accompany the proposal through the existing agency review processes." 42 U.S.C. § 4332(2)(C). Section 102(2)(C) is NEPA's most important procedural requirement in that it compels the development of a record from which it can be determined whether environmental factors have in fact been considered in the agency decisionmaking process.

NEPA case law firmly establishes the importance of the duty, embodied in § 102(2)(C), to consider environmental factors in agency review processes. In Calvert Cliffs' Coordinating Committee v. United States AEC, 449 F.2d 1109 (D.C. Cir.1971), that duty was given its definitive judicial gloss. Reviewing AEC hearing board guidelines that did not require hearing officers to consider environmental factors in licensing nuclear facilities, Judge J. Skelly Wright ruled that the purpose of §102(2)(C) was to require agencies to consider environmental values:

> The question here is . . . whether it is enough that environmental data and evaluations merely "accompany" an application through the review process, but receive no consideration whatever from the hearing board.
>
> We believe that the Commission's crabbed interpretation of NEPA makes a mockery of the Act. What possible purpose could there be in the § 102(2)(C) requirement (that the "detailed statement" accompany proposals through agency review processes) if "accompany" means no more than physical act of passing certain folders and papers, unopened to reviewing officials along with other folders and papers? . . . The word "accompany" in § 102(2)(C) must not be read so narrowly as to make the Act ludicrous. It must, rather, be read to indicate a congressional intent that environmental factors, as compiled in the "detailed statement", be considered through agency review processes. 449 F. 2d at 1117,1118.

Calvert Cliffs, which is regarded as the leading case on the duty to consider environmental factors in agency decisionmaking, establishes that compliance with § 102(2)(C) must "amount to full good faith consideration of the environment" and "if a decision is reached without consideration of environmental factors - conducted fully and in good faith - it is the responsibility of the courts to reverse." 449 F. 2d at 1113, 1115.

CEQ guidelines interpreting NEPA also confirm the duty of all federal agencies to consider environmental factors in agency decisionmaking. The guidelines require agencies "to build into their decisionmaking process, beginning at the earliest possible point, an appropriate and careful *consideration* of the environmental aspects of proposed action in order that adverse environmental effects may be avoided or minimized and environmental quality previously lost may be restored." 40 C.F.R. § 1500.1(a). (Emphasis supplied.) CEQ policy with respect to environmental impact statements is that all federal agencies shall:

> (1) Provide for circulation of draft environmental statements to other Federal, State and local agencies and for their availability to the public in accordance with the provisions of these guidelines;
>
> (2) *Consider* the comments of the agencies and the public;
>
> (3) Issue final environmental impact statements responsive to the comments received. 40 C.F.R . § 1500.2(b). (Emphasis supplied.)

CEQ guidelines, in short, mandate all federal agencies, in the preparation and circulation of environmental impact statements, to identify and discuss all existing opinion on the environmental effects of proposed administrative action, to consider those opinions and to have those opinions accompany the agency proposal through its existing review processes.

2. The Standard of Strict Compliance

Judicial interpretation of NEPA has firmly established that its procedural requirements "are not highly flexible," but rather "establish a strict standard of compliance." Calvert Cliffs, supra, at 1112. The Calvert Cliffs case, in a holding adopted by courts too numerous to mention (see, e.g., National Helium Corp v. Morton, 455 F.2d 650 (10th Cir. 1971); Daly v. Volpe, 350 F. Supp. 252 (W.D. Wash. 1972)), established a rigorous standard for compliance with § 102(2)(C):

> Of course, all of the §102 duties are qualified by the phrase "to the fullest extent possible." We must stress as forcefully as possible that this language does not provide an escape hatch for footdragging agencies; it does not make NEPA's procedural requirements somehow "discretionary". Congress did not intend the Act to be such a paper tiger. Indeed, the requirement of environmental consideration "to the fullest extent possible" sets a high standard for the agencies, a standard which must be rigorously enforced by the reviewing courts.
>
> Thus, the §102 duties are not inherently flexible. They must be complied with to the fullest extent, unless there is a clear conflict of statutory authority. Considerations of administrative difficulty, delay or economic cost will not suffice to strip the section of its fundamental importance. 449 F.2d at 1114, 1115.

The purpose of NEPA's procedural requirements, particularly the §102(2)(C) impact statement process, is to guarantee that environmental values are fully considered in administrative decisionmaking. Compliance "to the fullest extent possible" effectuates that purpose. Thus, "the procedural duties, the duties to give full consideration to environmental protection, are subject to a . . . strict standard of compliance." 449 F2d at 1128. Any failure by Interior to comply with NEPA procedural requirements must be measured against that standard.

3. Legal Sufficiency of Draft Tract Specific E.I.S.

Measured against the standard of strict compliance, we believe that the draft tract specific E.I.S. for Southern California O.C.S. leasing is legally deficient in several respects. First, we note that the tract E.I.S. and the entire review process for Southern California O.C.S. leasing are illegal *per se* because they are occurring *before* the release of a final program E.I.S. on expanded nationwide leasing and *prior* to any decision about that expanded lease proposal. This problem is discussed in detail below.

Next, we set forth in this analysis several major impacts of O.C.S. development in Southern California which have been inadequately discussed or omitted altogether. These issues include the need for a coherent national energy policy, relative environmental impacts nationwide, degradation of air quality, onshore land use impacts, economic losses to local governments, and economic and environmental effects of oil spills. Cases interpreting NEPA have evaluated the adequacy of impact statements and found them legally inadequate for want of sufficient detail. In Environmental Defense Fund v. Corps of Engineers, 325 F. Supp. 728, 759 (E.D. Ark. 1971), aff'd, 478 F.2d 289 (8th Cir.1972), the court turned to the dictionary definition of "detail" and concluded, "Necessarily, the E.I.S. must be 'marked by abundant detail or thoroughness in treating small items or parts.'" And in Silva v. Lynn, 482 F.2d 1282, at 1287(1973), the First Circuit commented, "A conclusory statement 'unsupported by empirical date, scientific authorities, explanatory information of any kind' (citation omitted) not only fails to crystallize issues but 'affords no basis for a comparison of the problems involved and the alternatives.)" Similarly, in this case critical environmental impacts of O.C.S. development have been insufficiently discussed; these deficiencies must be remedied in the final statement.

Further, the tract specific draft E.I.S. reveals that there are significant "unknowns" about the impact of O.C.S. development in Southern California. There exists no baseline data with which to evaluate the impact of O.C.S. development. Scientists have yet to fully examine the long term effects of oil spills on marine life, their possible carcinogenic effects, and uptake of pollution into the marine food chain. Scientists do not know the cumulative effect of repeated or continuous spillage without a sufficient period for biological recovery. There is a need to consider the cumulative impacts of all energy related developments in Southern California. There is a need to consider separately five distinct regional areas of the Southern California O.C.S. Interior cannot rely on the absence of data regarding these matters to conclude that a resource may not be impacted. There is an affirmative obligation upon federal agencies to develop the missing data. As the court ruled in E.D.F. v. Hardin, 325 F. Supp. 1401 at 1402 (D.C.D.C. 1971), NEPA "makes the completion of an adequate research program a prerequisite to agency action. The adequacy of the research should be judged in light of the scope of the proposed program and to the extent to which existing knowledge raises the possibility of potential adverse environmental effect." And in Lathan v Volpe, 350 F. Supp. 262, 265 (W.D. Wash. 1972), the court held, "The proper response to comments which are both relevant and reasonable is to either conduct the research necessary to provide satisfactory answers, or to refer to those places in the impact statement which provided them." Further research and study, then, is required to provide more definitive answers to the significant "unknowns" about the environmental impacts of O.C.S. leasing.

Finally, the draft tract E.I.S. fails to fully consider the viability of other alternatives to O.C.S. development or measures to mitigate its impact. Other alternatives include conservation, other energy sources, and splitting exploration from production. Mitigation measures inadequately considered include no nearshore drilling, economic guarantees to local governments, and improved drilling regulations and containment capability. N.R.D.C . v. Morton, 458 F. 2d 827, 839 (D.C.Cir.

1972), specifically addressed the need to discuss energy alternatives to O.C.S. development, "what is required is information sufficient to permit reasoned choice of alternatives so far as environmental aspects are concerned." Accord, Monroe County Conservation Council v. Volpe, 472 F.2d 963, 967(2d Cir. 1972).

For the reasons above, we believe that the tract specific draft E.I.S. for Southern California is legally inadequate. We urge that an opportunity for review of the tract proposal be provided after release of the program E.I.S. and a decision is made on nationwide leasing. We recommend that further research and study be done to fill our critical information gaps on the impacts of O.C.S. development. We suggest that further consideration be given to the economic effects of leasing that result from oil spills and need for increased municipal services, and that such consideration be done before any lease sale. Finally, we urge that a new tract specific draft E.I.S. be released curative of its present inadequacies. Until these things are done, compliance with NEPA will not have been achieved.

III. PREMATURITY OF ENVIRONMENTAL REVIEW PROCESS FOR SOUTHERN CALIFORNIA OCS LEASING

The Interior Department has yet to complete a final programmatic E.I.S. on its proposed nationwide expanded O.C.S. oil and gas leasing program. Only then will a decision be made whether to lease on the O.C.S. at all, and, if so, when, where, and according to what safeguards. Nonetheless, Interior has chosen to proceed with tract or site specific O.C.S. activities in Southern California and elsewhere. Thus, the tract specific E.I.S. for the proposed Southern California O.C.S. oil and gas leasing was released on February 21, 1975. Hearings on that draft E.I.S. were held in Los Angeles on May 6, 7 and 8. We believe that Interior is violating NEPA in proceeding with O.C.S. tract specific activities prior to the completion of a final, legally adequate, program E.I.S. on accelerated O.C.S. development nationally and before any decision to proceed with that program has been made.

The primary injury caused by proceeding with tract activities at this time is that public input to the agency decisionmaking process is rendered ineffectual, thus creating a substantial risk that environmental values will not be fully considered. That injury is compounded by the fact that Interior has failed to provide a meaningful opportunity for additional review and comment on the tract proposal after the final program E.I.S. has been released and a decision made on the overall expanded O.C.S. leasing plan. Additionally, tract activities requiring local review and comment at this time may prove to be an unnecessary waste of time, effort and money, should a decision later be made not to proceed with that overall leasing plan. Interior's premature tract activities, moreover, are likely to result in a bias in favor of proceeding with the accelerated nationwide and Southern California leasing programs. For these reasons, more fully discussed below, we believe that Interior's environmental review procedures violate NEPA.

A. PREMATURE PREPARATION AND ISSUANCE OF TRACT SPECIFIC DRAFT E.I.S. FOR SOUTHERN CALIFORNIA O.C.S. LEASING

The tract specific draft E.I.S. for Southern California offshore oil and gas leasing was prepared and issued in advance of two critical stages in the decisional process: (1) the completion of a final programmatic E.I.S. on O.C.S. development nationwide containing all relevant comment on the environmental effects of the proposal and (2) a decision on whether to lease nationwide and if so, when, where, and according to what safeguards. The failure to consider the environmental insights of the final program E.I.S. or the character of any decision to lease in the preparation and of drafting the tract specific document renders the latter legally insufficient *per se* in its present form.

1. Failure to Consider the Final Program E.I.S.

As *Calvert Cliffs* has definitively established, NEPA requires that a final E.I.S., containing all comments received, must "accompany" a proposal through all existing agency review processes and be given full and good faith "consideration" in those processes. 449 F.2d 1109 at 1117-18; 43 U.S.C. § 4332(c). The preparation of a tract specific E.I.S. is a distinct stage in the agency review process. Thus, a final program E.I.S., which has yet to be prepared, has not accompanied the agency proposal through each distinct stage in the review process, and has not been given the consideration demanded by § 102(2)(C).

Nor does it matter that a draft program E.I.S. was available at the time the tract specific draft E.I.S. was prepared. The draft program document does not contain the information on the environmental effects of the proposed expanded O.C.S. leasing plan received during the comment and review process. Moreover, a statement in the tract specific draft E.I.S. indicates that the document was prepared prior to the hearings at which public comments were received. Tract Specific Draft E.I.S., Vol. 2, p. 501, fn. 1. Those comments were extensive, many of which raise substantial doubts about the adequacy of the draft program statement. Those comments were not available and were not considered when the tract specific statement was prepared. Also not available and not considered were amendments to the draft program E.I.S. which will not be released until summer of 1975.

Had the above information on the environmental effects of the proposed Southern California leasing program been available and been considered when the tract document was prepared, its substance undoubtedly would have been entirely different. Agency review processes, in other words, have been undertaken without the good faith consideration of all relevant environmental opinion mandated by NEPA and Calvert Cliffs. The tract specific draft E.I.S., in order to comply with NEPA, must be reevaluated in light of the final program E.I.S.

There is, then, a close and sequential relationship between the findings of the program E.I.S. and the preparation and evaluation of a tract specific E.I.S. CEQ guidelines confirm that sequential relationship:

> In many cases, broad program statements will be required in order to assess the environmental effects of a number of individual actions on a given geographical area (e.g., coal leases), or environmental impacts that are generic or common to a series of agency actions (e.g., maintenance or waste handling practices), or the overall impact of a large-scale program or chain of contemplated projects (e.g., major lengths of highway as opposed to small segments). Subsequent statements on major individual actions will be necessary where such actions have significant environmental impacts not adequately evaluated in the program statement. 40 C.F.R. § 1500.6(d)(1). (Emphasis added.)

The tract specific E.I.S. cannot be a "subsequent" statement unless and until a final, legally adequate, program E.I.S. has been completed. Indeed, the very purpose of the subsequent tract specific statement is to evaluate those aspects of Southern California O.C.S. development not adequately discussed in the program E.I.S. - a determination that cannot possibly be made until a final program E.I.S. has been completed and released. Were the relationship not sequential, the duty to consider environmental factors as required by NEPA would be rendered meaningless. Interior, in other words, has taken the cart before the horse.

2. Failure to Consider Decision on Nationwide Leasing

The tract specific draft E.I.S. is legally deficient in yet another way, in that the document was released before a decision has been made to go forward with nationwide accelerated O.C.S. leasing. If a decision is made not to drill, the tract specific document will then be wholly unnecessary, its preparation a waste of time and public resources. Moreover, the premature preparation and release of a 2,000 page draft E.I.S. creates a possibility, even a likelihood, of bias by the agency in favor of a decision to lease nationwide. Even if a decision to lease is made, the character of that decision could drastically alter the scope and nature of the proposed agency action in Southern California, which would, of course, necessitate an amended tract specific E.I.S. The tract specific draft E.I.S., in order to comply with NEPA's duty to consider environmental factors, must be reevaluated when a decision to drill has been made.

B. PREMATURE HEARING AND COMMENT PROCESS FOR SOUTHERN CALIFORNIA TRACT SPECIFIC DRAFT E.I.S.

The tract specific draft E.I.S. for the proposed Southern California O.C.S. oil and gas leasing was released on February 21, 1975. Hearings on that draft E.I.S. were held in Los Angeles on May 6, 7 and 8. Initially, a deadline for all public comment was set for May 23. 40 Fed. Reg. 7692 (February 21, 1975). In a letter to Interior on February 27, we expressed our concern over the release of the tract specific draft E.I.S.

and the holding of public hearings on that proposal before the completion of a final program E.I.S. on expanded O.C.S. leasing nationwide and prior to any decision to proceed with that proposal. Also of importance was the close of the public comment period prior to the occurrence of those two events.

There were four reasons for our concern. First, unless and until a final, legally adequate, program E.I.S. has been released, it will be impossible for Californians intelligently and responsibly to fully understand and comment on the tract proposal for Southern California. Second, with a deadline for public comment on the tract draft E.I.S. of May 23, no meaningful opportunity to review that document in light of the final program E.I.S. has been provided. Second, there will be a substantial waste of time, effort, and money by local agencies and citizens who wish to comment on the tract proposal if a decision is later made not to proceed with the expanded national leasing program. Finally, proceeding with tract specific activities prematurely, with the attendant commitment of substantial resources by Interior, creates a likelihood of bias on the part of the agency in favor of a decision to drill both nationally and in Southern California. For these reasons, we sought a postponement of the hearings until issuance of the final program document and a decision to lease is made.

Despite our concern, Interior has chosen to proceed with tract specific activities. Necessarily, public comment must be made on the document without giving any consideration to the environmental information contained in the final program E.I.S. or to the character of any decision to undertake accelerated leasing nationwide. To make matters worse, Interior has failed to provide a meaningful opportunity for review and comment on the tract specific draft E.I.S. after release of the program E.I.S. and any decision to go forward with the expanded national leasing program. True, Interior has decided to "accept" public comments on the tract specific E.I.S. for Southern California during a 60 day period following the release of the final program E.I.S. and during a 30-day period following release of the final tract E.I.S. for Southern California. Yet these procedures are totally inadequate for reasons set forth below.

Interior's procedures, then, raise several issues: (1) Does the unavailability of the final program E.I.S. and the absence of a final decision to lease render the scheduled hearing and review process on the tract E.I.S. ineffectual? (2) Is there a right to comment on the tract E.I.S. after release of the final program E.I.S. and the decision to lease? (3) Do Interior's procedures preclude such comment? We think the answer to each of these questions is yes.

1. Unavailability of Final Program E.I.S.

Unless and until a final, legally adequate, program E.I.S. for accelerated leasing nationwide has been completed, federal, state, and local agencies and other interested parties cannot intelligently analyze, and comment on, the tract specific draft E.I.S. for Southern California O.C.S. leasing. NEPA requires that a final impact statement, containing all public comment on the environmental aspects of a proposed agency action, must "accompany" the proposal through existing agency review processes. The purpose of that requirement is to ensure that environmental values are fully considered in agency decision-making. The hearing and comment period for the tract specific draft E.I.S. for Southern California is a critical agency review process. Yet the final program E.I.S. did not "accompany" Interior's proposal through the hearing process, nor will the final document be available before the close of the comment period. As a result, interested parties will not be able to consider the environmental information contained in the program E.I.S. in commenting upon the Southern California proposal, and the review process will not be informed by that information.

Thus, the primary injury caused by conducting the hearing and review process prior to the release of a final program E.I.S. is that the purpose and value of public comment has been vitiated. Much of the comment will prove to be unnecessary. More importantly, the comment will be diffuse and unfocused, for the issues in need of discussion will not yet be apparent. There is, in other words, a close and sequential relationship between the program and tract impact statements. Indeed, CEQ guidelines indicate that the purpose of the tract E.I.S. is to discuss those aspects of a major individual action "not adequately evaluated in the program statement." 40 C.F.R. § 1500.6(d)(1). Only upon the release of a final, legally adequate, program E.I.S. can it be determined what aspects of the Southern California project were not adequately discussed in the former document. Only then will public comment on Southern California oil and gas leasing be meaningful and the NEPA duty to consider environmental values satisfied.

The need for the final program E.I.S. before commenting on the tract proposal is even more critical in view of the extensive testimony and evidence about the inadequacies of the draft program E.I.S. presented at the February hearings on that document. Those inadequacies were so serious that Interior has decided to amend the program document. Those amendments, together with the public comment at the February hearings, should be made available before any hearing and review process on the tract specific draft E.I.S. takes place. Interior, moreover, has indicated that the final program document will be available this summer. Balancing the importance of meaningful public comment against a few months' delay, Interior's conduct is hardly the kind of systematic, reasoned decisionmaking envisioned by NEPA.

Thus, the scope and nature of public comment on the tract specific draft E.I.S. would undoubtedly be entirely different if the program document were available. Public comment would be directed to the localized effects of the Southern California leasing program. Yet such an analysis is not possible until broad program issues overlapping with proposed individualized projects are resolved. The scheduled hearing and review process on the tract specific draft E.I.S. for Southern California O.C.S. leasing renders public comment ineffectual and thus violates NEPA's duty to consider environmental factors in agency decisionmaking.

2. Absence of a Final Decision

The hearing and comment period will also be concluded before any decision is made whether to proceed with the accelerated

O.C.S. leasing program. If a decision is made not to drill, or to drill but not in Southern California, then the hearing and comment process on the tract E.I.S. will have been a total waste of both federal and local resources. Effective local comment requires a substantial expenditure of time, effort and money, and therefore is particularly burdensome for financially constrained local governments, small organizations, and private citizens. In view of the fact that actual oil and gas production is several years away, there would appear to be no necessity to proceed with Southern California tract activity so precipitously as to risk a waste of resources by local public and private entities and persons. Indeed, the premature rush toward Southern California O.C.S. development suggests a strong bias on the part of Interior in favor of a decision to lease, which is, of course, a substantial risk in proceeding with any tract activity prior to a final decision on the larger proposal.

Perhaps as important as the decision to lease nationwide is the content of that decision. If a decision is made to lease, Interior will also have to decide what tracts are to be leased and what terms should be incorporated in any lease sale to mitigate possible adverse environmental consequences. Interior, for example, could decide not to lease any tracts within 25 miles of shore. In Southern California, five areas are being considered for leasing, three shoreward of the Channel Islands, one of which is Santa Monica Bay, and two seaward of the Channel Islands, on the Santa Cortes Ridge. A national 25 mile limit would exclude all but the two areas west of the Channel Islands. Comment at the hearings and during the review process can be expected to focus on Santa Monica Bay and San Pedro Bay, with very little comment on the outer tracts. Thus, if the Santa Monica Bay and San Pedro Bay areas were later eliminated by the decision made on the national leasing program, comment will not have focused in depth upon the environmental consequences of leasing in the outer areas.

Other decisions could also affect the hearing and comment process on the tract proposal. Interior could insist that all offshore platforms contain sun reflectors to protect the view from the beach. Strict liability for oil spills could be established, as could a revenue sharing mechanism to offset the cost to local governments of servicing onshore support facilities. Many of the environmental concerns about Southern California O.C.S. leasing could thus be resolved by any mitigation measures taken by Interior as part of its decision to lease nationwide. Yet directing attention to such matters now in connection with the tract E.I.S. necessarily means that the real issues affecting Southern California will not have been properly and meaningfully addressed.

Until the character of the national decision is known, Southern California communities can't really know what the proposed agency action is, let alone be able to comment intelligently on that action. The entire scope and nature of the proposed Southern California action could be altered by the program decision, thus necessitating an amended tract specific draft E.I.S., additional review and comment, and further waste of public resources at the local level. Conducting the hearing and review process on the tract specific draft E.I.S. prior to the national program decision destroys the value of the only public comment to be permitted on the tract proposal and runs afoul of NEPA's procedural provisions which were designed to effectuate meaningful comment.

3. Right to Comment on Tract E.I.S. After Release of Program E.I.S. and Decision to Lease

The hearings on the tract specific draft E.I.S. have been rendered valueless by proceeding prior to the release of a final program E.I.S. and a decision to lease. Nor is it at all clear whether a meaningful opportunity for even written comment will be provided before those two events occur. The critical issue, then, is whether there exists a right to additional comment after those two events have occurred? We can conceive of no other conclusion consonant with NEPA than that such a right does exist.

As noted above, meaningful public comment on the tract specific E.I.S. cannot be made until the program E.I.S. is released and a decision is made to go forward with the national leasing program. Only then can commenting parties know to what extent issues affecting Southern California O.C.S. development were not adequately discussed in the program document or, for that matter, even what the proposed agency action will be. The lack of a meaningful opportunity to review the tract document after those events have occurred results in a failure to consider environmental values in agency decisionmaking as required by NEPA and Calvert Cliffs.

Other cases support the proposition that an additional comment period must be provided where necessary to ensure a meaningful opportunity for public comment on a proposed agency action. In both *Daly* v. *Volpe*, 350 F.Supp. 252, 260 (W.D. Wash. 1972) and *Brooks* v. *Volpe*, 350 F.Supp. 269, 280 (W.D. Wash. 1972), it was held that inadequate advance notice of hearings or of release of relevant documents resulted in a denial of opportunity for meaningful comment on an impact statement. An additional comment period was ordered to be provided. In *City of Rye, New York* v. *Schuler*, 355 F.Supp. 17 (S.D. N.Y. 1973), procedural deficiencies resulted in the denial of a full opportunity for effective public participation in highway corridor location hearings. Hearings were enjoined until after comments on all relevant issues were solicited, essential information on relevant issues was made available, and timely notice given. In *Greene County Planning Board* v. *Federal Power Commission*, 455 F.2d 412 (2d Cir. 1972), hearings were held before an E.I.S. was prepared by an agency's own staff. The court ordered a second round of hearings to be held after that statement had been prepared and circulated. In all four cases public hearings were required by law, but, whether by hearing or by written comment, NEPA requires no less than the same full opportunity for meaningful comment demanded in those cases. In this instance, that opportunity can occur only if comment is permitted after the final program E.I.S. is issued and a decision is made regarding expanded nationwide leasing.

Jicarilla Apache Tribe of Indians v. *Morton*, 471 F.2d 1275 (9th Cir. 1973), perhaps provides the most meaningful guide to when an extension of the NEPA comment process would be appropriate. In that case, an energy study for the Southwest was released by the Interior Department after final impact statements had been completed for three coal-fired electric generating plants. Plaintiffs sought to reopen the comment and review process, arguing that availability of the study was essential to a meaningful evaluation of the environmental impact of the three projects. The court ruled that completion of the public review and comment stage prior to release of the study did not violate NEPA because the study, while its availability would have been of assistance, was not intended to consider the need for the power plants in question, or their environmental consequences, and in fact was a projection of future electric production after the plants there in question had been completed. The study, in other words, was of little probative value or relevance. The court, in reaching its decision, set forth criteria for when extensions of the comment period should be made:

> Other factors must be considered in addition to the possibility of obtaining more complete information, including the consequences of delay, the present state of information concerning the environmental factors, and the degree of probative value and relevance of the information which may be gained by delay. There are certainly instances where the unavailability of information might require delays in filing draft statements or extensions of time in which to comment upon the statements, if the procedures of NEPA are to be conducted in a meaningful way. 471 F.2d at 1281 (Emphasis supplied.)

In this case, all four criteria are satisfied. The information gained from the final program E.I.S. and the character of any decision to drill will not only be of assistance, but are essential if the real issues affecting Southern California are to be addressed. Balancing the benefits of a few months' delay against the harm to a project that will take years before full production is reached, the consequences of delay are minimal.

All four criteria, then, are satisfied in this instance, and, when combined with the interests arising out of the sequential relationship between program and tract E.I.S. - failure to consider environmental factors, waste of resources, and bias, the conclusion is overwhelming that an additional opportunity for meaningful comment on the tract specific draft E.I.S. must be provided after a final program E.I.S. is issued and a decision to lease is made.

4. Inadequacy of Interior's Comment Procedures

Interior, however, claims that there is ample opportunity to review the tract specific draft E.I.S. after the final program document has been issued and a decision is made about the accelerated national leasing program. Interior has announced that, although the deadline for written comment on the tract specific draft E.I.S. is May 23, comments on the tract document will also be "accepted" during a 60 day period following release of the final program E.I.S. and during a 30 day period following release of the final tract E.I.S. See Letter of March 23 from Assistant Secretary of Interior Royston Hughes to Mayor Tom Bradley and City Attorney Burt Pines; Notice of Public Hearing (April 8, 1975). Thus, on paper it would appear that an opportunity has been made available to comment on the tract E.I.S. after release of the final program E.I.S. and a decision to lease nationally.

Yet upon further analysis that claim appears to have little basis in fact. First, Interior has limited comment on the tract E.I.S. during the 60-day period following release of the final program E.I.S. only to issues that are interrelated with issues discussed in the program E.I.S. By implication, comments will not be accepted that relate strictly to the Southern California leasing program and are unrelated to the program E.I.S. Thus, all purely local issues must be discussed by the May 23 deadline date. Yet by what act of divination are we to know at this time which issues are local and which are interrelated with the program document? The determination cannot be made until the final program E.I.S. is released.

Second, Interior has conceded that the 60-day waiting periods following release of the program and tract statements may overlap. That necessarily means that a final tract E.I.S. may be prepared and released even before comments are received on the final program E.I.S. and a decision is made about the national leasing program. In that event, the only opportunity for review and comment on the tract specific proposal, in light of the amended program E.I.S. and any decision to drill, is during the 30-day waiting period after the final tract proposal is sent to CEQ.

But comment during that period is useless because the comment received by Interior will not have been attached to the final tract document, nor considered or responded to therein as required by law. In order to comply with NEPA, comments on an E.I.S. must be responded to and considered in a final statement.

A final E.I.S., according to CEQ guidelines, must be "responsive to the comments received," 40 C.F.R. § 1500.2(b)(3), and should be released "with substantive comments attached," 40 C.F.R. § 1500.7(a). Necessarily, then, comments on the final program E.I.S. and the character of any decision to lease must be received _before_ the final document is drafted and released. Once a final statement is issued, comments received thereafter will not receive the full good faith _consideration_ required by NEPA and _Calvert Cliffs_. Put another way, the final decision on the national leasing program must _precede_ the close of the comment period on the final tract E.I.S.

The waiting period which follows the release of a final impact statement, moreover, was never designed, nor is it regarded by CEQ, as a method of satisfying an agency's duty to elicit public comment on the potential environmental consequences of proposed agency action. The waiting period is merely a time during which political and legal action may be taken before the bulldozers begin to roll. Issuance of a final statement, in other words, is a decisive stage in the agency decisionmaking process after which the agency is not required to respond further to public comment.

Interior, then, would violate its duty to receive and consider input on environmental consequences if it were to release a final tract E.I.S. without first receiving comments on that document that reflect the impact on it of the national leasing decision. Moreover, if Interior were to indicate that comments received during the waiting period would be responded to and considered, then the document would not be "final" until the agency prepares and releases its responsive comments. As a result, no decision could be made on the tract proposal "sooner than thirty (30) days after the final text of an environmental statement (together with comments) has been made available to the Council, commenting agencies and the public." 40 C.F.R. § 1500.11(b). Thus, either the final tract E.I.S. is indeed "final" as Interior appears to claim, in which event Interior has violated its duty to receive and consider input on environmental consequences, or the statement is not really "final" until the expiration of the waiting period and release of still another document with comments attached and responded to, in which event CEQ guidelines mandate another 30-day delay before any decision can be made to lease. Interior cannot have it both ways.

C. CONCLUSION

For the reasons outlined above, we believe that Interior's environmental review procedures for the proposed Southern California O.C.S. leasing are in violation of NEPA. Nevertheless, we have chosen to submit written comments on the deficiencies of the tract specific draft E.I.S. But we do so under protest and without any belief that we have been or will be provided with a meaningful opportunity to fairly comment on the proposal or, for that matter, that our comments will be seriously considered.

IV. INADEQUACIES OF THE E.I.S.

A. O.C.S. ISSUES NOT ADEQUATELY COVERED IN EITHER THE DRAFT PROGRAM E.I.S. OR DRAFT TRACT E.I.S.

In our analysis of the draft program E.I.S., we noted several critical issues relevant to the impact of expanded O.C.S. development nationwide that were inadequately discussed or not discussed at all. Many of these issues are equally applicable to the proposed Southern California O.C.S. leasing, yet have not been responded to in either the program E.I.S. or the tract E.I.S. Among these issues are the following:

1. Need for Coherent National Energy Policy

Neither E.I.S. has set forth a coherent national energy policy, nor delineated the role of O.C.S. leasing nationwide, and in Southern California, in meeting the nation's needs. Only when a comprehensive energy policy has been established will the need, or the extent of need, for accelerated leasing O.C.S. nationwide and in Southern California be known. What role, for example, should be played by other energy alternatives such as solar, geothermal, nuclear, oil shale, hydroelectric, bio-energy, and wave motion energy sources? To what extent can existing oil supplies be increased by production of shut-in wells, improving secondary and tertiary recovery, and tapping onshore petroleum reserves held by the military at Elk Hills and "Naval Pet 4" in Alaska? How much can we reduce our need for additional offshore oil and gas development by adopting strict energy conservation measures? The answers to these critical questions regarding the national energy picture may obviate the need for O.C.S. development or at least suggest a slower rate of development.

2. No Discussion of Relative Environmental Impacts

The relative environmental impacts of O.C.S. drilling nationwide have yet to be adequately evaluated. The draft program E.I.S. contained no discussion of relative environmental impacts, and the draft tract E.I.S. contains but a short 25 page description of different areas proposed for leasing with little comparative evaluation. The Southern California O.C.S. is an unusually rich marine resource because of nutrient upwelling. It also is a unique recreational and commercial resource enjoyed by millions, a resource essential to the quality of life in Southern California. Clearly, any decision regarding accelerated national drilling and Southern California drilling must carefully consider and balance the potential environmental impacts on the California O.C.S. in contrast to the impacts in all other proposed areas.

3. Degradation of Air Quality

Neither document contains a sufficient discussion of the potential deterioration of air quality due to increased refinery and other onshore related activity. Increased refinery capacity and operation will clearly result in substantial increases in sulfur dioxide, particulate matter, nitrogen dioxide, carbon monoxide and hydrocarbons. The tract Specific E.I.S. gives but one page to the issue of air pollution and fails even to mention the secondary impacts on air quality from increased refinery activities. In view of the severe air pollution problems already faced in Southern California, this oversight is inexcusable.

4. Onshore Land Use Impacts

Little attention has been paid in either document to onshore land use impacts caused by O.C.S. support activities such as harbor and dock facilities, equipment storing areas, pipeline terminals and corridors, tank farms and transportation facilities, and refinery, petrochemical complexes and supporting construction industries. In view of the already overcrowded conditions in Southern California, treatment of this issue is wholly inadequate. The potential of these facilities for conflicting with other land use values, and the resulting environmental impacts, must be fully discussed and considered by one or the other E.I.S.

5. Economic Losses to Local Governments

Local governments will be seriously impacted by O.C.S. development as a result of two factors: the enormous economic costs caused by oil spills and the cost of additional municipal services provided to O.C.S. related developments. Neither the program E.I.S. nor the tract E.I.S. fully considers the economic impact of O.C.S. development, nor proposes any mitigating measures to offset those economic burdens.

6. Coastal Zone Management Act

As noted in our analysis of the draft programmatic E.I.S. for accelerated leasing nationwide, Interior's leasing timetable circumvents the purposes of the 1972 Coastal Zone Management Act. O.C.S. leasing should be postponed until such time as the states have had an opportunity to adopt coastal zone management plans and have such plans approved by the U.S. Secretary of Commerce, as provided for in the Coastal Zone Management Act. Once such approval is obtained, any federal agency conducting or supporting an activity directly affecting the coastal zone shall, to the maximum extent practicable, conduct such activities consistent with approved management programs.

B. ENVIRONMENTAL IMPACT OF SOUTHERN CALIFORNIA O.C.S. LEASING

1. Insufficient Data for Environmental Analysis

Although Interior has surveyed the existing scientific literature in an attempt to determine the environmental impacts of Southern California O.C.S. leasing, there are still many "unknowns." We need further information and studies regarding marine and coastal resources, as well as the potential impact of O.C.S. development on these resources. We believe that the Department of Interior has an affirmative obligation to develop the necessary data for evaluation of the full impact of O.C.S. development.

Baseline data on marine and coastal resources, then, appears to be essential. We note that the Bureau of Land Management in Los Angeles has recently begun to contract with universities and research organizations to accumulate necessary baseline data. On April 1, 1975 the BLM contracted with the University of California at Santa Cruz and with the University of California at Irvine for a study of marine mammals and birds in the Southern California Bight. We are informed that U.S.G.S. is also helping with this research. Early in May, 1975 an RFP ("Request for Proposals") was issued requesting interested parties to submit proposals to BLM for baseline studies. This RFP, according to BLM officials, was sent to between 200 and 300 scientists and universities. We are informed that the BLM intends to begin negotiations sometime in May regarding this RFP. Although the Department of Interior contends that baseline data is needed only to monitor O.C.S. production, we believe that a certain basic knowledge of our resources is essential to a reasoned evaluation of the impact of leasing.

There also is need for more definitive studies of the impact of O.C.S. leasing on marine life. At a conference held at the Los Angeles Museum of Natural History on April 15, 1975, Dr. Malcolm Gordon, a biologist at UCLA, claimed that no studies had been done by Interior on the toxicological effects of drilling muds, no experimental studies of the effects on community structures of exposure to oil pollution, and no studies on the possible reproductive and genetic effects of oil spills on marine life. He also indicated a critical lack of information regarding benthic and mid-water life systems, and the effects thereon of chronic, low-level pollution. As Dr. Enright indicates in his scientific advisory report in Part Two, there is also concern that pollution inhibits photosynthesis with respect to planktonic species. BLM recognizes that danger, see Draft Tract E.I.S., Vol. 2, p. 168, but apparently does not intend to conduct more definitive studies. In our analysis of the draft programmatic E.I.S., we noted many other unknowns regarding the impact of O.C.S. leasing. See Analysis, pp. 187-207.

Yet one "unknown" potential impact which stands out above all others as needing more definitive study is possible carcinogenic uptake in the marine food chain. An article in the Los Angeles Herald Examiner on Sunday, February 16, 1975 discussed the possibility that oil spills might cause cancer in clams, scallops, and oysters. According to Dr. Paul Yevich, a pathologist on the staff of the National Marine Water Quality Laboratory in Narragansett, Rhode Island, soft-shell clams, depending on the type of oil spill, get a particularly pervasive form of reproductive cell cancer which quickly spreads to their every organ. The scallops develop growths on the insides of their blood vessels and hearts, suggestive of certain cardiac conditions in man, as do the oysters, while the lobsters apparently suffer a loss of chitin, the material which hardens their shells.

In the last four years, Dr. Yevich has examined more than 9,000 soft-shell clams and found carcinogenic changes only in those that had been exposed to oil. When there was a spill of both jet fuel and crude oil from Air Force onshore storage tanks in Maine, he reported, "Thousands upon thousands of these animals died." That spill, he explained, occurred in March, 1971, but periodic studies made since have shown that the danger persists. In fact, he explained, hydrocarbon residues in bottom sediment have spread the toxicity miles and miles from the original location of the spill--one reason the State of Maine is suing the Air Force for $90,000.00. As recently as last year, for example, samples of clams were obtained from various neighboring waters which revealed a cancer incidence of 9 to 18%.

Besides reporting on field studies in several places where various kinds of oil spills occurred, Yevich told of laboratory experiments in which shell fish have been exposed to low activity in the areas of sewage outfalls and heavy bottom sediment pollution which would be resuspended into the water column. Thus, harmful substances (e.g. DDT) could be taken up into the benthic community which would thereby serve as a link for passing the pollutants on to the bottom-feeding fish." This latter statement indicates that, even if the hydrocarbons from oil were not incorporated into the food chain, there is still a possibility that oil spills will result in other toxic substances being introduced into the food chain. Thus, the chances of some toxicity being introduced into the food chain as a result of spills and discharges is not insubstantial.

Page 70 of Vol. 2 describes this issue thusly: "It is difficult to assess or predict potential damage of chemical pollution to one group of organisms, i. e., plankton, but it seems appropriate to discuss the problem at this point. A few scientists have offered cautious speculation. A more pessimistic view is taken by Blumer (1969) who has stated: '. . . we are rather ignorant about long-term effects.' Blumer (Ibid) then points out that hydrocarbons are taken up into the food chain, and through the process of biological magnification can become concentrated in marine species used by man for food."
In Vol. 3, an article appears on page 615 entitled Effects of Oil on Marine Ecosystems, summarizing the scientific research that has been done on toxicity and carcinogenicity of petroleum on living organisms. The article strongly supports Blumer's position. For example, the following statement appears at page

levels of crude oil over periods of several weeks. In the face of such chronic exposure, even as little as one part per million of oil in water products produces pathological changes, he reported, and no one really knows whether even lesser concentrations may be harmful as well.

Besides being potentially destructive of marine animals, oil spills may be no laughing matter for man. Yevich, for example, had been told by a physician living in Texas that there had been a tremendous increase of allergies among people who eat fish that swim among the offshore oil rigs. Such reports merit investigation, the more so because softshell clams from the site of an oil spill and subsequent detergent clean-up on the Canadian border have been found to have inflammed gills. When Dr. Yevich was questioned on the meaning of these facts for mankind, his answer was, "Gentlemen, we are dealing with a world of unknowns."

The draft tract specific E.I.S. appears to be equivocal on the issue of the possibility of carcinogenic effects from O.C.S. development. Contradictory positions are presented by Interior within the context of this one statement. On page 68 of Volume 2, in discussing the impacts of oil on phytoplankton, the E.I.S. states, "No evidence was found in the literature that spilled oil enters marine food chains via adsorption or absorption by phytoplankton and subsequent ingestion by grazing herbivores." However, on page 87 of Vol. 2, this statement occurs: "The demersal fish feed largely on benthic organisms and the greatest threat to their food source would be burial and construction

621:

> "The entrance of oil-derived hydrocarbons into marine food chains is evident. Smith (1968, p.49) reported that the presence of oil and benzene-ring compounds in the feces of limpets browsing on an oily deposit has been demonstrated chemically; similar observations have been made on top-shells, Monodonta, and limpets, Patella, living on oily rocks at Prerranuthnoe. He reported, the proportion of oil in material ingested by these animals was estimated at about 20 to 30% in Patella and 5 to 50% in Monodonta. Smith (1968, p. 65) believed it unlikely that any food value to the browser is derived from such feeding activity. However, such feeding activity does concentrate hydrocarbons in organisms that are in turn eaten by larger animals and the oil thus enters the food chains."

The article provides a succinct summary of the detrimental effects of petroleum on the ecosystem:

> "Blumer (1970, p. 12) summarizes the potential damage to marine ecology from pollution with crude oil and oil fractions as follows: (1) direct kill of organisms through coating and asphyxiation. (2) direct kill through contact poisoning of organisms. (3) direct kill through exposure to the water-soluble toxic components of oil at some distance in space and time from the accident. (4) destruction of the generally more sensitive juvenile forms of organisms. (5) destruction of the food sources of high species. (6) incorporation of sublethal amounts of oil and oil products into organisms resulting in reduced resistance to infection and other stresses (the principal cause of death in birds surviving the immediate exposure to oil). (7) incorporation of carcinogenic and potentially mutagenic chemicals into marine organisms. (8) low level effects that may interrupt any of the numerous events necessary for the propagation of marine species and for the survival of those species which stand higher in the marine food web."

In addition to the preceding material, the following facts are relevant to this issue: Hydrocarbons are synthesized by most, if not all, living organisms. Hydrocarbons are fat soluble and thus have the potential to be retained and accumulated in organisms. Low-boiling saturated hydrocarbons are related to the fat soluble anaesthetics and have a narcotic effect on a wide variety of animals. In lower animals at low concentrations they often cause sleep or irreversible insensibility. At higher concentrations, they often cause cell damage and death, especially in larval and juvenile stages of marine organisms.

Low-boiling aromatic hydrocarbons comprise the most toxic petroleum fractions. The low-boiling aromatics are acutely poisonous to man and marine organisms alike. Benzene, toluene and phenols, such as found in crude oil, produce in man reactions similar to those of alcohol. The initial reaction is restlessness, then excitement, inebriation, drowsiness, depression and sleep. Death may follow from respiratory failure as the concentration rises (Goldacre, 1968). Chronic exposure to low concentrations of some aromatics, especially benzene, may cause bone marrow disease, chromosome aberrations and leukemia (Finkel, 1960). Low-boiling aromatics even more watered-soluble than the saturates, can cause mortality of marine organisms by contact, even with diluted solutions (Blumer, 1970, p. 3.)

Evidence exists, then, of the potential carcinogenic uptake in marine food chains as a result of oil spills. These studies are inconclusive, speculative and disputed by BLM and others. Yet the issue should be thoroughly researched before any leasing decision is made.

2. Failure to Measure Cumulative Impacts

One of the glaring deficiencies of the draft tract E.I.S. for Southern California O.C.S. leasing is its failure to consider the cumulative impacts of O.C.S. development. Analysis of cumulative impacts is not only essential to successful future planning but required by CEQ guidelines: "The interrelationships and cumulative environmental impacts of the proposed action and other related Federal projects shall be presented in the statement." 40 C.F.R. § 1500.8(a)(1).

Cumulative impacts also include impacts from other energy related development. The tract's discussion of cumulative energy impacts is insufficient. Mr. Robert Soloman of the California Energy Commission staff put it most aptly, "Now, if you read each of these impact statements separately, they always tend to conclude that the impacts of the proposed projects is negligible and, therefore, the projects should go ahead. The question is what happens when you add up all these impacts?" Hearings on Draft Tract E.I.S., Los Angeles, May 8, 1975. Currently, studies are underway by the Congress through the Office of Technology Assessment to consider the total "environmental load" that will be sustained on the Atlantic

Coast as a result on O.C.S. and other energy related development. Similar studies should be conducted for Southern California.

The cumulative impacts of energy related development in Southern California, moreover, appear to be far-reaching, even approaching maximum "environmental load." Within the proposed lease sale areas, there are two proposed deep water ports (Los Angeles and Long Beach), two liquid natural gas (LNG) terminal facilities (Los Angeles and Oxnard), and a refinery and marine terminal (Carlsbad), in addition to proposed O.C.S. development. There is also a need for additional nuclear energy. Additional refineries are needed for the production of low-sulphur fuel. There will also be considerable transportation of oil from the Alaskan North Slope and from the Middle East. Continuing importation may dictate a deep water superport. These energy activities also have substantial onshore activities, particularly near shore as industry seeks the transportation advantages of coastal location. Transporting Alaskan oil to the Midwest and East will necessitate transportation routes, transportation facilities, and other onshore impacts. The cumulative impacts of energy related development, then, are extensive.

Yet we must plan with cumulative impacts in mind. Until now, moreover, there has no systematic energy planning, as a result of which chaotic development is now occurring. In Southern California, we have no mechanism for assessing in any systematic and comprehensive manner these environmental loads.

There is no state or federal agency articulating policy guidelines for California in choosing among options. We call for a complete assessment of the total "environmental load" of energy development in Southern California.

3. Need for Regional Analysis of Distinct Areas

The draft tract E.I.S. for Southern California O.C.S. leasing postulates development of five general areas containing 297 tracts. These areas include the following:

a. San Pedro Bay
b. Santa Monica shelf and basin
c. Santa Barbara (Santa Catalina area)
d. Santa Rosa Cortes area north
e. Santa Rosa Cortes area south (Tanner Cortes banks)

Yet these five areas are vastly dissimilar in geography, water depth, seismic activity, marine resources, proximity to recreational and commercial uses, etc., and suggest that each general area should be described and discussed separately. Indeed, the tract document concedes that "no single tract (or set of tracts) could be considered as typical or representative of the entire area." Draft Tract E.I.S., Vol. 3, p. 141.

The draft tract E.I.S., however, describes the Southern California O.C.S. as if it were one area. Although a proximity evaluation is made of proposed tracts to impact producing factors which may result from their development, that analysis is admittedly "subjective," see Draft Tract E.I.S., Vol. 2, p. 343, and does not provide an integrated analysis of leasing in the five general areas. Also, because the bases for that proximity evaluation are not fully set forth, independent review of that evaluation is not possible. We believe that a separate E.I.S. should be prepared for each of the five general areas.

4. Need for Further Study

A recurring theme in this discussion of the adequacy of the E.I.S. is the existence of "unknowns" and the need for further study before any leasing decision. We need completed baseline studies in order to know what resources exist that may be effected by O.C.S. development. We need more definitive studies of the impact of oil pollution on marine biota, particularly on potential carcinogenic uptake in the marine food chain. We need an integrated analysis of the cumulative impact of O.C.S. and other energy related development in Southern California. We need a regional analysis of the five vastly dissimilar regions proposed for leasing. We call for these additional studies not for the sake of endless study but because such studies are essential to reasoned decision-making. They also appear called for by NEPA: "The proper response to comments which are both relevant and reasonable is to either conduct the research necessary to provide satisfactory answers, or to refer to those places in the impact statement which provide them." Lathan v. Volpe, 350 F. Supp. 262, 265 (W.D. Wash. 1972). And in E.D.F. v. Hardin, 325 F. Supp. 1401 at 1403 (D.C.D.C. 1971), the court held that NEPA "makes the completion of an adequate research program a prerequisite to agency action. The adequacy of the research should be judged in light of the scope of the proposed program and to the extent to which existing knowledge raises the possibility of potential adverse environmental effect." NEPA, then, places an affirmative obligation upon federal agencies to develop missing data.

C. UNAVOIDABLE ADVERSE IMPACTS

1. Oil Spills - Environmental and Economic Effects

The draft tract E.I.S. concedes that oil spillage in Southern California waters will dramatically increase as a result of O.C.S. development. With a natural background spillage of approximately 3,650 barrels per year, Interior's high case estimate of future oil spillage is 82,600 to 116,000 barrels per year. If correct, there will be a total oil input to marine ecosystems each year in an amount equal to the 1969 Santa Barbara oil spill disaster.

The possibility of a blow-out similar to the Santa Barbara experience may be somewhat diminished as a result of stricter regulations, improved blow-out prevention training, technological advances, and more frequent inspections. Yet oil industry engineering experts regard human error as the primary cause of blow-outs. No one can guarantee against a repetition of the Santa Barbara disaster.

While the probability of a major blow-out has been reduced since 1969, the probability of a major oil spill occurring as a result of increased tanker traffic has greatly increased. This is especially true of Santa Barbara Channel, which is already the busiest shipping lane on the Pacific coast. Increased oil tanker traffic from Alaska coupled with increased traffic from resumption of offshore oil drilling substantially increase the probability of an oil tanker colliding with another vessel or, worse yet, with another tanker or with an offshore platform. The draft tract specific E.I.S. admits the likelihood of such major oil spills.

Even more troublesome than major spill events are the cumulative effects of chronic small or moderate spills emanating from tankers, platforms and broken underwater pipelines. The draft tract E.I.S. postulates that there will be a maximum leakage from pipelines of nearly 5,000 barrels of oil per year. Draft Tract E.I.S., Vol. II, p. 19. Interior concedes on the same page that the problem of pipeline leaks from anchor dragging has not yet been solved.

The total long term damage to the marine and coastal environment from such major increased pollution is, of course, extremely difficult to assess. One scientist, noting that the number of marine organisms after the Santa Barbara spill appeared to be roughly comparable to pre-spill populations, has concluded that the spill's effect on marine life was negligible. Straughan, Biological and Oceanographical Survey of Santa Barbara Channel Oil Spill, 1969-70, 1971. Others dispute that conclusion, arguing that no adequate baseline information was available to make such comparisons and charging that the study included no physical or chemical analysis of subtle toxic effects. Blumer, Scientific Aspects of the Oil Spill Problem, 1971; Connell, A Review of Straughan, 1972. Scientists, then, are not certain about the long-term damage to the marine environment of oil spills. As noted in an earlier section, one of the major "unknowns" is the possible carcinogenic effect of oil pollution on marine species and uptake into the marine food chain. These are serious problems which deserve further study and analysis.

The draft tract E.I.S., moreover, makes a serious mistake in assuming as it does that the effects of massive spills are mitigated by subsequent biological recovery. Interior's high case estimates of oil spillage postulate a yearly amount of pollution equal to the Santa Barbara spill. Yet the tract specific draft E.I.S. contains no discussion of the cumulative impact of spills on the marine environment year after year without opportunity for recovery. NEPA requires that the cumulative effects of a proposed agency action be considered in the E.I.S. We believe that the failure to consider the cumulative impact of yearly spills without the same opportunity for recovery as existed after the Santa Barbara spill is a serious deficiency which must be remedied in the final E.I.S.

Whatever the long-term damage to the marine ecosystem, the short-run effects of oil spillage are undeniably severe, as the Santa Barbara experience has taught us. Dr. Max Blumer of Woods Hole has summarized the potential effects on marine life of crude oil pollution:

(a) Direct kill of organisms through coating and asphyxiation.

(b) Direct kill through contact poisoning.

(c) Direct kill through exposure to the water soluble toxic components of oil at some distance in space and time from the accident.

(d) Destruction of the generally more sensitive juvenile forms of organisms.

(e) Destruction of the food sources of higher species.

(f) Incorporation of sub-lethal amounts of oil and oil products into organisms resulting in reduced resistance to infection and other stresses (the principal cause of death in birds surviving the immediate exposure to oil)

(g) Incorporation of carcinogenic or potentially mutagenic chemicals into marine organisms.

(h) Low level effects that may interrupt any of the numerous events necessary for the propagation of the marine species and for the survival of those species which stand higher in the marine food web.

Many of these effects on the marine environment manifested themselves following the Santa Barbara Oil spill. Foster, The Santa Barbara Oil Spill: A Review of Damage to Marine Organisms, 1974. Organisms in the rocky intertidal zones suffered severely. The smothering effect of the oil killed barnacles, surf grass, organisms living in the habitat provided by the surf grass such as limpets and polychaete worms, and many other species also die from oil ingested during preening or feeding. Diving birds like the loon and grebe were particularly affected during the Santa Barbara disaster. Attempts to save birds by cleaning their feathers proved futile. Possible long-term effects include reduction in breeding success and the uptake of hydrocarbons.

The economic costs of a major spill are enormous. Aside from the value of lost oil, Union Oil Company spent $10 million on well control and beach cleanup, while governmental agencies spent another $639,200. Mead & Sorenson, The Economic Cost of the Santa Barbara Oil Spill, 1970. An estimate has been formulated that the total cost to cleanup and restore still contaminated rocks and sand on publicly owned parks and tidelands would range from 11.8 million to 30 million dollars. U.R.S., supra.

As for measuring the economic cost of damage to marine life, two alternative approaches have been suggested. The first approach is to estimate the cost of replacing the dead or damaged marine organisms. Total damages as a result of the Santa Barbara spill were estimated at $10 million by this method. Sorenson, Economic Evaluation of Environmental Damage Resulting From the Santa Barbara Oil Spill, 1974. The alternative approach is to measure the short-term reduction in resource yields. In this approach, the contribution of the resource to the food chain ultimately represented in fish catch, is measured and added to the yield in terms of amenity values of the intertidal and other organisms which were destroyed. Added to this is the information cost of determining long-run damage. Using a resource yield theory of short-run damages, Sorenson estimates the economic cost of the Santa Barbara spill to be $6,831,624.00.

Spills cause indirect economic losses to State and local governments in a variety of ways. As a result of the Santa Barbara spill, beaches owned by State and local governments diminished in property value and yielded interim rent and utility losses. These losses have been appraised at $3.9 to 5.1 million for the State of California, $2.6 to 3.2 million for the City of Santa Barbara, $234,000 to $326,000 for the County of Santa Barbara and $215,000 to $280,000 for the City of Carpinteria. These losses, which range from $6.9 to 8.9 million do not include the cost of cleanup operations, nor do they include losses suffered by local governments in Ventura County or by private land owners. Affidavit of George Hamilton Jones in State of California v. Union Oil Company, No. 69-1068-RM, United States District Court, Central District of California.

The State of California and local governments also suffered lost sales tax revenues because of lost beach use and lost tourism. The spill cost the State of California $17 million in sales tax, the County of Santa Barbara $1.1 million in sales taxes and $500,000 in property taxes, the City of Santa Barbara $3 million in sales taxes and $600,000 in bed taxes, and the City of Carpinteria over $566,000 in tax revenues. These losses do not include losses by local governments in Ventura County.

Testimony of A. Barry Capello, City Attorney of Santa Barbara, before California State Lands Commission, 1974.

Another environmental and socio-economic impact of the Santa Barbara spill was the diminution of public services to local communities. Reduced public services occurred as a result of redeploying existing resources to handle the spill and of lost tax revenues. No value has been estimated for the loss of public services.

The commercial fishing industry also suffered damage from the oil spill. Fishermen were unable to get boats out of Santa Barbara Harbor because of oil containment booms. There was little fishing to be done anyway because of fear of oil damage to vessels and equipment and contaminated catches. Sorensen, supra, calculated damage to commercial fishermen to be $804,250.

No damages to tourism have ever been estimated because losses to local businesses were cancelled out by gains in other geographical areas. The loss in bed tax revenues by the City of Santa Barbara and the City of Carpinteria, however, indicates that the losses were substantial.

Sorensen, supra, also estimates that the recreational value of beach experiences lost to residents and visitors was $3,150,000. Beachfront real estate was damaged by the spill and property values declined. Sorensen, supra, estimated the loss in property value to be $1,197,000.

The Santa Barbara experience, then, provides valuable insight into the economic and environmental consequences of oil spills. Indeed, that spill stands out conspicuously in the minds of all coastal communities as the paradigm of the potential hazards associated with offshore drilling. Yet, neither the draft program E.I.S. nor the draft tract E.I.S. devoted more than a few pages to this disaster.

In summary, oil spills are inevitable and the total spillage may well amount to the equivalent of one Santa Barbara spill per year. Oil spills do serious short-term, and, more importantly, may do long-term, damage to the biological life and physical characteristics of the marine and coastal environment. In this regard, we are particularly concerned with the cumulative effects of oil spills on marine ecosystems without sufficient opportunity for biological recovery, the possible carcinogenic effect of oil pollution on marine species, and the uptake of pollution into the marine food chain. The economic costs of oil spillage are enormous, causing losses to many people and public entities directly and indirectly. The total cost of the 1969 oil spill, for example, has never been calculated. Indeed, its effects are still being felt. We believe that any proposal for O.C.S. development must fully consider such impacts, safeguard against serious long-term environmental damage, and guarantee any financial losses. These problems should be more thoroughly addressed in the final statement.

2. Onshore Land Use Impacts

Many related onshore activities will require exclusive use of land in coastal areas where intense competition for use of land occurs. Onshore activities related to O.C.S. development having primary land use impacts would include, but are not limited to: navigation and access channels, crew boat basins, equipment storage depots, warehousing areas, clean-up and containment equipment staging areas, pipeline terminals and corridors, tank farms, trans-shipment and road or transportation accommodation facilities, refineries, petrochemical complexes and supporting construction industries.

Water and air pollution associated with these onshore activities will occur, though possibly ameliorated by the use of various control technologies. Impacts on aesthetic and scenic values may be adverse and displeasing as a consequence of construction of onshore terminals, product storage facilities, and pumping stations, if these facilities are located in areas valued for their natural or scenic qualities. Noise pollution from vehicular traffic to and from these facilities may also result, reducing aesthetic enjoyment of scenic and natural areas. The severity of these impacts on the land is also keyed to the pace of development; generally speaking, the faster the development, the shorter the available time for planning for related impacts.

None of the preceding description contends with major onshore land use impacts associated with the potential catastrophe of an oil spill, which, in light of recent freighter accidents near Hong Kong and off the Scottish coast, provides cause for concern and evaluation. Such an occurrence--whether accidental or chronic--could also have its onshore land impacts. If a spill reached the shore, the primary shore land impact would be, dependent on severity, the potential for preventing citizen use of the beaches. The secondary impacts include a loss in coastal tourist trade, in commercially productive tourist centers, with accompanying effects in diminution in land value and the aesthetic enjoyment of the coast. This is very significant in light of the fact that the tourist industry is the third largest industry in California.

Although the possible primary onshore impacts appear substantial, some of the most significant environmental impacts are secondary impacts. These include land use impacts on the affected community infrastructures comprised of physical and service systems, and business and governmental institutions. Particularly with rapid population increases related to O.C.S. development, induced impacts could be suffered by the water supply and sewage systems, the energy supply, residential, recreational, commercial and industrial facilities, air quality, and various transportation sectors. Support services for O.C.S. development are also bound to have a contributing impact. For each community affected, for example, additional schools, law enforcement and fire protection, health care and hospital facilities, sewage handling, solid waste management, and government planning and organization will be needed.

Despite these considerable land use impacts, the draft tract specific E.I.S. does not view those impacts as a significant problem because onshore activities will be regulated by the California Coastal Zone Commission and by other local agency land use controls. We believe that this position is in error for several reasons.

First, such state and local agencies do not control the land use impacts of activities originating from locations beyond their jurisdictions, such as oil spills and air pollution. Second, if O.C.S. development takes place, affected local governments will be faced with difficult port siting, onshore storage and tankage, construction and lay down, and refinery siting questions that may be beyond the capacity of local governments to deal with in a comprehensive and coordinated manner. While California's Coastal Zone Conservation Commission will take the lead in that regard for coastal communities, their jurisdiction extends only 1,000 yards inland. Non-coastal communities are without coordinated planning. As for the Coastal Commission, a shoreline plan has yet to be adopted. We believe any lease sales should await implementation of that plan. Once the lease sale occurs, and exploration and drilling commence, there exists the possibility of oil spills and air pollution (from fires) which will have potential land use impacts.

Finally, the treatment of land use consumption as an irreversible commitment of resources is woefully inadequate. Less than one full page is given to this subject in the draft tract E.I.S. (p.435-436) and the discussion is limited to the use of 1,000 acres for pipeline construction in Ventura County. What about new refineries? What about storage facilities? What about changes in demographic patterns as a result of new employment opportunities? What about the land use impacts of increased onshore activities and new communities? Clearly, more land than the 1,000 acres in Ventura County will be consumed as a result of O.C.S. development, particularly in secondary ways. In an area as populated as Southern California, land use consumption from O.C.S. development limits the areas available for recreational uses, view sites, parks, residential areas and other commercial and non-commercial uses. The failure to fully analyze the irreversible and irretrievable commitment of land resources, particularly those that occur as a result of secondary activities, is one of the most serious omissions in the draft tract specific E.I.S.

3. Degradation of Air Quality

The draft tract specific E.I.S. devotes but one page to deterioration of air quality. The discussion implies that no serious degradation of air quality would occur unless there was a fire, a possibility which is one of the risks connected with oil production.

This summary treatment of the possible adverse impact on air quality, expecially in the circumstances of Southern California which is substantially impacted by air pollution, is completely inadequate. Air pollution is one of California's most serious environmental problems. Any increase in this pollution must not be lightly regarded.

O.C.S. development may have a substantial adverse effect on air quality, depending upon where the petroleum is refined. Possible increases in refinery capacity in the South Coast Air Basin must be addressed. Increased refinery capacity in the South Coast Air Basin would add substantial amounts of sulfur dioxide, particulate matter, nitrogen dioxide, carbon monoxide and hydrocarbons to the air.

California presently has 34 refineries with an estimated crude oil capacity of 1,852,000 bbls. per day. Fifteen refineries are located in the South Coast Region with a total capacity of 1,012,000 bbls. per day. Ten of these refineries are located in coastal regions.

Increased demand for petroleum products, anticipated imports from the Alaskan north slope and Southern California O.C.S. leasing would combine to increase pressure to construct new refineries along the west coast. Economic considerations, including major capital requirements, construction, labor, material costs and accessible markets, enhance the probability that new refineries would be located in the vicinity of large metropolitan markets. In fact, 12 refinery projects have been proposed for construction in California. The issue of whether the petroleum would be refined here or piped/shipped to other regions must be discussed.

A recent study by the Radian Corporation analyzed the environmental ramifications of refinery construction and production. A large new refinery with the production capacity of 200,000 bbls./day was selected as a model for study. A typical refinery consists of a combination of standardized unit processes. Each unit process contains equipment to perform a refining operation on whole crude, or a fraction of the crude. These refining operations include separation by fractionation, conversion by catalytic reaction to more desirable or higher quality products, product treating processes, and auxiliary operations for such purposes as by-product control, storage and others. Ambient air emission estimates were prepared for each of the unit processes.

Sulfur dioxide is emitted from refineries as a result of processing fuels containing sulfur. If the sulfur content is low, as is projected for Southern California O.C.S. oil, the resulting sulfur dioxide is minimized. Modern control technology does exist which can reduce but not eliminate sulfur emissions. The coastal portions of the South Coast Air Basin already suffer from unacceptably high levels of sulfur. To the extent that refining capacity is increased the problem will be aggravated. The tract specific E.I.S. must project the extent of increased sulfur emissions which would result from Southern California O.C.S. development. A commitment to reduction of sulfur emissions by use of hydrodesulfurization and flue gas desulphurization must be made.

Nitrogen dioxides are a component of flue gases which are also released. Generally, nitrogen dioxide can be controlled by combustion control designed features such as 2-stage combustion or offstoichiometric firing. One exception is the ethylene plant. High flame temperatures are required by this process, precluding combustion modification. Uncontrolled emissions of nitrogen dioxides are a result.

The "cat" cracker is a significant potential source of particulate matter and carbon monoxide. The catalytic cracking process converts heavy distillant oils (typical boiling range of 650° to 900°F.) into petroleum factions of lower boiling range and of correspondingly lower molecular weight. Refineries should be required to install the best available control devices in an attempt to achieve and maintain particulate and carbon monoxide ambient air quality levels.

A violation of the hydrocarbon standard by itself is not reported to constitute a public health hazard, but photochemicals formed by hydrocarbons do create hazards to the public's health. The Radian Study indicates that even if the best control devices and good maintenance procedures were followed, hydrocarbon emissions would be in excess of federal standards by a factor of 20 to 40. Hydrocarbon leaks were found by Radian throughout the refinery and storage areas and especially around pumps, valve glands and flange areas in the refineries studied.

The Radian Study reports that the estimated impact of a 200,000 bbl./day refinery upon ambient air quality can be significant. Hydrocarbon emissions from additional refineries in the South Coast Air Basin would prevent the attainment and maintenance of ambient quality standards.

The South Coast Air Basin already produces 38% of the total tonnage of air pollutants in California. Stationary sources (including refineries) contributed 28% of the total emissions during 1972. Furthermore, refineries were estimated to contribute more than 100 tons a day of nitrogen oxide emissions found in the Los Angeles basin. The Los Angeles Air Pollution Control District reports that petroleum refineries within Los Angeles County were responsible for 55 tons per day of SO2 in 1973 (out of a total of 320 for all stationary sources). 5 tons of particulates per day (out of a total of 65 tons for all stationary sources) and 5 tons reacting hydrocarbon (out of a total of 15 tons for all stationary sources).

The air quality in Southern California is so far from reaching primary ambient air quality standards at the present time that inland cities in Southern California are greatly concerned about any increase in air pollution from the addition of more refineries. A spokeswoman for the City of Claremont testified at the May 6 hearing on the Draft Tract Specific E.I.S. that "based on the ambient air quality State standards (o.10 ppm) there were 215 days last year [1974] over the oxidant level."

[Emphasis added]. Increased refinery activity will undoubtedly result in further degradation of present air quality and pose an undue burden upon local residents who must work and live in a polluted environment. Furthermore, the entire South Coast Air Basin is under mandate to develop an air quality maintenance plan to fulfill the requirements of the federal government for the long-term attainment of the national ambient air quality standards. It is incumbent upon the Bureau of Land Management to provide information about the effect of coastal leasing on these plans and standards.

There is little doubt that the quality of air in Southern California is far from reaching primary ambient air quality standards. Though some reduction of hydrocarbons and carbon monoxide emissions have been achieved, this trend is forecasted to be reversed as a result of stationary sources switching from natural gas to oil for fuel. A consulting firm, K.V.B. Engineering Inc., indicates that nitrogen oxide emissions in the South Coast Air Basin will increase by 15% by 1980. The Department of Interior must discuss where the petroleum recovered from Southern California O.C.S. development would be refined. Additional refineries in the South Coast Air Basin would impact our already degraded air quality.

We would therefore ask that the Department of the Interior slow the process of the oil leases long enough to do a thorough analysis of the national energy needs and to do an E.I.S. that follows the production of oil clear through the refinery stage and the resultant environmental impact on the air quality of inland cities.

4. Economic Losses to Local Governments

O.C.S. development in Southern California will have a significant economic impact on local governments because of oil spills and increased municipal services for onshore related development activities. Yet the draft tract specific E.I.S. concludes, "The establishment of additional oil facilities will not have a negative financial impact on the operation of local government . . . industrial enterprises more than offset the cost of services needs by the amount of taxes generated." Draft Tract E.I.S., Vol. II, P. 277. We think this conclusion is erroneous.

In reaching their conclusion, the Department of Interior relies on two tax articles that conclude that industry generates a surplus of revenues for local government and another study by the California Builders Council which reaches the same conclusion. Only one source considers the specific impact of oil related industrial development, a study that looks at the small, unrepresentative town of El Segundo. The draft E.I.S. does not mention whether the study assesses the costs to surrounding communities of refinery activities in El Segundo.

Although Interior must certainly have been aware of them, two sophisticated economic evaluations of the impact of O.C.S. development on local government were not even mentioned in the draft tract E.I.S. One study concluded that the State of Louisiana sustains net onshore costs in excess of assignable tax revenues of $38 million per year in support of offshore operations beyond the three mile limit in order to provide services to people who work in federal waters. Gulf South Research Institute, Baton Rouge, Louisiana, Offshore Revenue-Sharing: An Analysis of Offshore Operations on Coastal States, ASRI Project No. X5-614. Texas has also recently released a study which estimates the potential costs to the state as a result of new O.C.S. leasing in the Gulf of Mexico. This study concluded that the net cost to state and local government in excess of new revenue will be $52.1 million per year. Benefits and Costs to State and Local Governments in Texas Resulting from Offshore Petroleum Leases on Federal Lands (1974). We have discussed these two studies in considerable depth in our analysis of the draft program E.I.S. (see Analysis, pp. 256-273). We incorporate that discussion here and renew our plea for a review of the current distribution of benefits and burdens and consideration of the implementation of an equitable renevue-sharing system between the federal government and affected state and local governments, or, alternatively, institute a judicial or administrative scheme for the imposition of development charges upon the oil producers granted the privilege of O.C.S. development.

Interior's analysis of the economic impact of O.C.S. leasing on local governments is faulty in still another respect.

No mention is made of economic losses suffered by local government as a result of oil spills. We have already recounted, in our analysis of the draft program E.I.S. and elsewhere in this document, the enormous financial burden faced by Southern California coastal communities as a result of the 1969 Santa Barbara oil spill. The direct cost incurred by governmental agencies for cleanup operations, disaster monitoring, beach and offshore inspection trips, etc., was $639,200. Mead and Sorensen, *The Economic Cost of the Santa Barbara Oil Spill*. Yet the Santa Barbara beaches are still contaminated. Oil stained rocks destroy the habitat of rocky intertidal organisms, while oil deposits buried in beach sand can affect the habitat of sandy beach organisms. It has been estimated that the total cost to clean up and restore contaminated rocks and sand on publicly owned parks, beaches and tidelands would range from $11.8 million to $30 million. U.R.S., *Physical Assessment and Cleanup-Restoration Cost Estimate of Coastal Areas Contaminated by Material Related to the 1969 Santa Barbara Oil Spill Incident*, 1974. Also, valuable beach sand was removed during cleanup operations. U.R.S., *supra*, estimated the value of sand on public land lost by 1969 cleanup operations to be in a range from $185,960 to $346,370.

There were also many indirect costs to local governments. Beaches owned by state and local governments diminished in property value and yielded interim rent and utility losses. These losses have been appraised at $3.9 to $5.1 million for the State of California, $2.6 to 3.2 million for the City of Santa Barbara, $234,00 to $326,000 for the County of Santa Barbara, and $215,000 to $280,00 for the City of Carpinteria. These losses, which range from $6.9 to $8.9 million do not include the cost of cleanup operations, nor do they include losses suffered by local governments in Ventura County. Affidavit of George Hamilton Jones in State of California v. Union Oil Company, No. 69-1068-RM, (United States District Court, Central District of California).

The State of California and local governments also suffered lost sales tax revenues because of lost beach use and lost tourism. The spill cost the State of California $17 million in sales taxes, the County of Santa Barbara $1.1 million in sales taxes and $500,000 in property taxes, the City of Santa Barbara $3 million in sales taxes and $600,000 in bed taxes, and the City of Carpinteria over $566,000 in tax revenues. These losses do not include losses by local governments in Ventura County. Testimony of A. Barry Capello, City Attorney of Santa Barbara, before California State Lands Commission, November, 1974.

Another environmental and socioeconomic impact of the spill was the diminution of public services to local communities. Reduced public services occurred as a result of redeploying existing resources to handle the spill and of lost tax revenues. No value has been estimated for the loss of public services.

The draft tract specific E.I.S. does not consider these potential economic losses to local governments in a thorough and systematic manner. If it were to do so, the economic impact on coastal communities in the Los Angeles area, where beach use is many times greater than in Santa Barbara, would be awesome. The failure to consider these losses is particularly serious in view of the fact that Interior's high case estimates of oil spillage postulate the equivalent of one Santa Barbara spill per year. We urge that further analysis of the economic impact of O.C.S. development on local governments be made and that consideration be given to some form of an oil spill liability mechanism to compensate local government for losses that are sure to occur.

6-7 [illegible]

D. ALTERNATIVES INADEQUATELY CONSIDERED

1. The Alternative of Conservation

We believe that a comprehensive energy conservation program should be an essential part of any national energy policy. To that end, we presented Interior, in our analysis of the draft programmatic E.I.S., with extensive suggestions on how to implement such a program. See Analysis, pp. 46-117. Should a conservation program be seriously undertaken, the need for O.C.S. development would be substantially reduced, as would the pace of development.

An article appeared in the Los Angeles Times on May 11, 1975, entitled "It's Still Gluttony as Usual on America's Energy Front." The article begins its discussion of solutions to the energy crisis with the comment that "in its continuing struggle to devise a national energy policy, the United States has begun to resemble a fat man who plucks up his will power and resolves that henceforth he will order his hot fudge sundaes without whipped cream." No matter what alternative energy sources we choose to develop at the present time, concludes the article, there must be an "irreversible commitment to a progressively tougher regimen."

On Saturday, April 26, 1975 at the Beverly Hilton Hotel, Beverly Hills, Los Angeles, a one-day conference on the energy crisis was sponsored by the Center for Law in the Public Interest. During the course of this conference, much time was devoted to the alternative of conservation.

Senator Gaylord Nelson, from Wisconsin, opened by stating that it is important for politicians to understand the environmental and economic problems involved in the energy crisis because this issue must be dealt with in the political arena. He suggested that the value of conservation can be seen in statistics such as the following: If automobiles were required to achieve an average mileage of 22 m.p.g., 675 million barrels per year of oil (equivalent to $7.2 billion per year) would be saved. A requirement of 30 m.p.g. would cut consumption 50% or $20 billion per year.

Indeed, stiff excise taxes could be assessed on the purchase of fuel-inefficient autos. The standard could get progressively stiffer, and be more ambitious than that favored by the Ways and Means Committee. By 1980, anyone buying a new car getting less than 20 m.p.g. might pay an extra $400 or $500 for the privilege. Purchasers of the real gas devourers might pay even more. The money could be used to finance rebates to buyers of the most energy-efficient vehicles -- whether foreign or domestic made. U.S. auto makers and their unions complain that such a tax and rebate system might lose them sales and jobs to imports. That argument would be plausible if the tax and rebate system were to be imposed immediately, but a phased-in system would give the auto makers ample time to change their designs and marketing strategies.

Other measures to achieve conservation include mass transit, reduction of heat waste in buildings, and end to the monopolistic combination of industry. Controls on domestic oil prices could be ended sooner, rather than later, without resort to the tortuous formula some are suggesting. Present controls discourage investment in costly techniques for squeezing marginal production out of declining fields, and it makes little sense to pay higher prices to foreign producers than to domestic ones, when the cartel suppliers are beyond the reach of U.S. taxes and U.S. producers are not.

Ronald Doctor, Commissioner, California State Energy Resources, Conservation and Development Commission, stated that conservation is necessary and possible without disrupting the economy. The longer we delay, the greater the risks become. Furthermore, he indicated that policies must be directed towards increasing supply as well as reducing demand and in doing so through the least environmentally damaging alternatives.

Mr. S. David Freeman, Director, Ford Foundation Energy Study, stated that energy conservation "helps with every aspect of the problem" -- it buys time and saves money as well. He outlined four stages by which energy conservation can be achieved: (1) Recognize that we are stuck with what we have; thus, we must "retrofit" to produce small changes in existing structures and systems. (2) Establish increasingly stringent performance standards. (3) New energy-saving technology must be developed and cannot be left up to the "free market system;" regulation is necessary. (4) Recognize that we need to shift from an orientation toward increasing the GNP to a system that includes recycling, durability, and changed lifestyles, -- we must experience growth in services and not in material production. Mr. Freeman stated that the most important point in this area is that we can uncouple energy from economic growth.

Robert Montgomery, General Counsel, Federal Energy Administration, set forth these criteria for a conservation program: (1) It must be effective -- substantial and immediate savings must occur. (2) These savings must be the result of greater efficiency (there is no need to sacrifice growth) and they should be compatible with increasing demand. (3) It has to be fair.

The conservation program must take a broader scope, i.e., not just transportation but industry and commercial users must conserve energy. In terms of fuel, fuel products other than petroleum, must also be conserved. Methodology must vary from mandatory to voluntary controls, to the use of economic incentives, depending upon the individual situation.

In response to the question of how to implement conservation programs, Senator Nelson responded that with mandatory controls big lobby interests come out ahead because they can "get around" the controls. The government says that gas consumption should be cut down, but it is unwilling to "take on Detroit;" it expects voluntary cutbacks on an individual basis.

We need mandatory conservation and political leadership as well as voluntary conservation. These are both lacking.

At the hearings held on the draft tract specific E.I.S. on May 6, 7 and 8 of this year, Mr. Joe Edmiston of the Sierra Club addressed the issue of solutions to the energy dilemma. He stated that increased offshore production has an important place in a comprehensive national energy policy. It must, however, follow the imposition of strict energy conservation measures and a national energy policy that places prime reliance upon energy conservation as the means of obtaining additional freedom from foreign imports.

In addition to focusing upon the importance of an effective conservation policy, Mr. Edmiston mentioned other alternatives which must be incorporated into a total energy scheme in order to solve the energy problem. These include a moderate program of leasing in already impacted areas of the O.C.S. (starting in the Gulf of Mexico), coal conversion of power plants (using the low-sulphur coal that can be deep- mined in West Virginia), increasing secondary and tertiary recovery of existing fields (onshore and offshore), together with a continuation of some imports. Use of all these alternatives may give this country an energy alternative to massive O.C.S. leasing.

2. Alternative Energy Sources

The dialogue between interested public agencies and the Department of Interior which began in Santa Monica in 1973 and continued in Beverly Hills in 1975 placed a strong focus on the possible utilization of alternative forms of energy. Indeed, we believe that there are other alternatives available which could help to solve the energy crisis.

The draft tract specific E.I.S. devotes 89 pages to a discussion of all the alternative actions which might be available to the federal government. The discussion but briefly discusses other energy sources, then speeds on to consider such alternatives as delaying the sale or choosing other alternative O.C.S. areas.

Other energy sources are described in only 38 pages. Within these few pages are contained many possible sources including coal, hydroelectric power, nuclear power, solar energy and various other sources. The sufficiency of this analysis is open to serious question.

NEPA requires that the relevant governmental agency consider viable alternatives to the proposed federal action. Volume 2 gives but a cursory account of other alternatives available. Interior's treatment of the issue indicates a lack of interest in other sources and a decision to go forward with O.C.S. development.

There is a large body of scientific research available on many of these alternative sources. Very little of this scientific material is included in the draft tract specific E.I.S. Recent studies by scientific organizations have focused on the alternatives of geothermal and ethyl alcohol as possibilities for energy production, but these alternatives are touched only very briefly in the draft tract specific E.I.S.

Possible energy alternative sources were also discussed at a Conference on Offshore Oil held at the Beverly Hilton Hotel on Friday, March 21, 1975. At that conference, Mr. Leonard Meeker asked about the level of federal funding for renewable energy sources with a special focus on solar energy. The internationally renowned diver, Jacques Cousteau, replied that it was his opinion that the relevant governmental authorities had diverted the issue of solar energy to considerations involving the heating and cooling of houses, when, in fact, the real problem in order to solve the energy crisis was the production of great amounts of energy through the avenue of huge solar producing plants. Jacques Cousteau stated that in order to develop this potential the U.S. would need a financial commitment for the first year of 10 billion dollars which would eventually amount to a trillion dollars within a ten year period. Undersecretary Hughes of Interior at this same conference replied to this question with the information that the federal government is presently spending 153 million dollars for all other alternative sources. He stated that the government was in no position to spend billions or trillions of dollars for alternative energy development.

Mr. T.L. Wright, a Petroleum Geologist, at a conference sponsored by the American Assn. of Petroleum Geologists held aboard the Queen Mary, on April 25, 1975, suggested several sources that should be considered in a total energy picture. Mr. Wright suggested that there will be room in an energy solution for more foreign oil imports than Congressional Committees predict, because it is his opinion that some energy exporting countries such as Iran and Venezuela have nothing else to offer the U.S.

At the conference held on April 26, 1975, sponsored by the Center for Law in the Public Interest, Michael McCloskey, Executive Director, Sierra Club, presented a different perspective on this issue of trade-offs. Since the impact of nuclear power production will continue into the future (500,000 years) we must consider the moral question of our responsibility to future generations. "They should be in on the vote." From this perspective, he sees coal as the most viable energy source. Production of coal forces us, rather than future generations, to pay the price of what we get.

In discussing the potential of nuclear power production, John F. O'Leary, former licensing director of A.E.C., described the overwhelming public rejection of nuclear power production and the problems of safeguards, storage and safety. In terms of safeguards and the possibility of diversion, he pointed out that the opportunity is already available; that "the genie is already out of the bottle." He considers the problem of storage as soluble, particularly because the use of breeder reactors can result in the production of radioactive waste with a half life of only 30 years instead of 500,000. He stated that safety problems too are being solved.

This analysis has done a brief survey of new developments in the areas of alternative sources available as solutions to the energy crisis. We continue to contend that the main answer lies in an effective conservation program. However, conservation alone will not solve the energy problem. The government must continue to investigate alternative sources. These sources must include secondary and tertiary recovery from old oil wells, solar energy, geothermal energy, and new energy forms such as the use of waste products and the use of waste oil.

3. Splitting of Exploration and Production

We also believe that a viable alternative within the proposed agency action is splitting exploration activities from production activities with respect to leasing. That is, the federal government would retain title to the tracts until after exploration revealed the extent and value of the resource; only then would the tracts be leased.

The advantage of such a leasing system is that it accommodates a legitimate national interest in determining what resource exists on the O.C.S. before an irreversible commitment of resources is made to the oil industry for commercial production. The government is thereby enabled to make intelligent decisions about the pace of development, rather than an all or nothing decision in ignorance. The public is also enabled to make intelligent policy input about production alternatives. The split leasing system could be initiated by the Interior Department without legislation. Some criticize the approach, however, because it means getting government into business, assuming risk, etc. That need not be so if the government were to lease areas for exploration, giving the exploring company preference rights to produce, nor need the same system be used everywhere. The modified leasing system could be utilized only in those areas where the risk-management arguments are less compelling.

Necessarily, one result of the uncertainty about the right to produce would be to lower the front end bonus bids. Royalty percentages upon production could be increased, although that too would lower the front end bonus bid. Yet that alteration in the bonus-royalty system would have two salutary effects. Lowered front end bonus bids would stimulate competition by reducing barriers to entry by small independent firms. Secondly, lower front end bonus bids would free more capital for further exploration because there would be less going in on the front end. We think the merits of this system would not only enhance exploration and production, but permit greater planning and intelligent decisions about leasing.

E. MITIGATION MEASURES NOT FULLY CONSIDERED

1. No Nearshore Drilling

Lease Sale 35 proposes bidding for leases and acceptance in 1975 with immediate exploration and development of shallow water tracts. Deep water tracts will also be leased but their development will follow some five or more years after the shallower water areas. The lease schedule is as follows:

> "Early exploration would be expected to begin in the Santa Monica and San Pedro Bay areas where an estimated 30 to 60% of the recoverable resource (oil and gas) lies. Also a large percentage of the area is in platform depth (under 800 feet) and production could be underway in two to three years.
>
> "The Santa Rosa Cortes area (north) is expected to be next in line for development. The final stage of development would be expected to take place in the Santa Barbara/Santa Catalina area and lastly the Tanner/Cortes Banks which is the furthest area from the shore. These last two areas are estimated to be rich in oil deposits but approximately 75% of the area is in very deep water. Draft Tract E.I.S., Vol II, p.286-287.

We believe that the proposed timetable should occur in exactly the opposite order, with development first in those areas furthest offshore and furthest away from impacted recreational and commercial coastline uses. We further believe that the risk of drilling to environmental and recreational values in nearshore areas, especially Santa Monica Bay, is so great that no drilling should ever occur there and even if drilling should occur there, the reverse order lease schedule would permit additional time to fully explore and understand the environmental effects of drilling in these precious areas.

Of particular significance regarding the proposed lease schedule is the fact that a minimum adequate baseline data survey for any of the proposed areas will take at least five years. Meantime, money will have been paid and vested rights acquired to the leased tracts. Regardless of what the biological survey finds, the recommended mitigation measures for special protection of natural resources after leasing are limited to alternative placement of structures within the leased tract at the discretion of the oil and gas supervisor and the requirement that, in cases of oil spill, containment equipment shall be deployed unless the supervisor modifies this requirement. As a practical matter, then, once the resource is leased, exploration and production become matters of right and environmental control regulations must be tested against the (government granted) right to get the oil out of the earth.

Environmentally, what does this mean to the coastline? Two agencies with planning authority for the coast, the State Water Resources Control Board and the South Coast Regional Coastal Commission, have developed classifications to denote the relative value of the shoreline ecosystems in Southern California. Three "areas of special biological significance" have been set aside in areas that would impacted by a possible spill. The E.I.S. details this problem and includes the Channel Islands, mainland coast from Mugu Lagoon to the northeast corner of Santa Monica Bay (the Malibu coast), and Newport Beach south to Dana Point; also in danger would be the Point Fermin area and Anaheim Bay.

The Water Board has found in these areas "biological communities of such extraordinary, even though unquantifiable, value that no acceptable risk of change in their environment as a result of man's activities can be entertained." Correctly, the E.I.S. concludes that "even a small spill would greatly impact an ASBS [Area of Special Biological Significance] if it went ashore. . ."

The South Coast Regional Commission found that "the coastal marine environment of the South Coast Region (Los Angeles and Orange Counties) ranked as one of the world's most biologically productive and useful." To preserve this environment, they recommended as part of the Coastal Plan that a system of marine parks and preserves be established to protect these environments of state-wide significance. The Malibu coast--recommended for preservation--would be immediately adjacent to the Santa Monica Bay lease area. Likewise, the Palos Verdes preserve recommendation would be endangered by the Santa Monica Bay proposal. The Central Orange County Marine Park and Preserve proposal would be next to the Santa Catalina Gulf lease area. For Catalina Island with its "relatively intact natural productivity" in the "intertidal and nearshore environment," the Commission recommended maintenance in its natural state; kelp beds and reefs and islets are included as sanctuaries for sea birds and marine mammals. A lease sale is proposed adjacent to Catalina and surrounding two sides of the Channel Island National Monument.

Oil platforms and associated development, to say nothing about the threat of oil spills, will interfere with the views from Dana Point, San Mateo Point, and Crescent Bay cove--all areas where viewpoints have been recommended for purchase by the South Coast Regional Commission. Indeed, the entire issue of aesthetic impact--while subjective--is very real as a critical impact upon the residents and visitors to our coastal zone. The shoreline is a special scenic place where the feeling of openness and uncluttered vistas is viewed as a precious and irreplaceable resource.

We believe that no drilling should take place in nearshore areas, particularly in Santa Monica Bay. Rather, if drilling is to take place at all, we recommend that it take place in those areas furthest away from the population centers. This criterion would establish the Tanner/Cortes Bank area as the most favorable for O.C.S. development.

The decision as to which areas shall be subject first to O.C.S. development is dependent upon a systematic analysis of the standards by which Interior intends to establish priorities on this matter. Dr. William Ménard of the Scripps Institute of Oceanography has made a substantial attempt to fully articulate this issue. Dr. Ménard, in discussions regarding the appropriate system for establishing priorities for development of O.C.S. leases, comments first on the CEQ ranking system. The CEQ has developed a system which works on the theory that the regions most apt to suffer environmental impacts from offshore drilling must be given the lowest priority. Using this principle, when one considers all the possible national areas for

O.C.S leasing, drilling in the Gulf of Alaska is the most hazardous and therefore, is the least desirable. This result is obtained because the possibilities of environmental impact from earthquakes, storms, and other natural occurrences are greater in the Gulf of Alaska than in any other national area. In addition, the CEQ method of ranking yields the fact that the East Coast of the United States is the most desirable place for drilling. Georgia is given the highest priority for O.C.S. drilling.

Although Dr. Ménard is of the opinion that the CEQ listing is reasonable, he suggests that perhaps the relevant agencies should consider different methods to order environmental impact. For the purposes of this analysis, a very brief summary will be given to an alternative method which Dr. Ménard advocates, entitled Perceived Environmental Forecast (PEF). Further information on Dr. Ménard's theory could of course be obtained from the source himself.

Dr. Ménard prefers the methods by which "acousticians measure things." Acousticians don't just measure noise in the absolute. They measure relative noise. They measure noise over background. They evaluate something called the Noise Exposure Forecast (NEF). In practical terms, an example of the use of a system similar to NEF is as follows: When one is considering a runway for an airport, one should consider which environment will be impacted by such a runway. It will make a difference whether or not the runway passes over a home for the deaf or whether it passes over a school. Of course, this comparison highlights the fact that a runway over a home for the deaf is not as likely to cause impact in the noise level to the inhabitants of such a home as it would cause to the residents of the school. However, even in regard to the school, if the runway were to only impact that particular building during those hours when the school was not in session, there also would be no significant impact on the school. The point of such an analysis is that the decision is based on the relative impact caused by any given development. Analysts trained by this method identify such factors as the number of people that would be impacted by the development and how close the people are to a certain intensity of noise and how those people will be affected by that noise.

It is Dr. Ménard's contention that such a system could be developed to analyze more effectively the relative impact of the tracts that are proposed for O.C.S. development. Dr. Ménard states his conclusion in this fashion:

> "The assumption is that everywhere there is an environment, there are people enjoying it or making a living from it or both. One says then that the important--one of the very important things--is how many people are there and how far away are they? How often does the insult occur, and how rapidly does it occur?"

Dr. Ménard has stated that using such method would result in a different system of priority for the O.C.S. areas off Southern California. He has concluded that in considering drilling off Santa Monica Bay by this method ". . . you can see that nobody would have ever proposed any drilling off the Santa Monica Bay with the millions of people that are inside that area everyday." Dr. Ménard has also stated that Santa Monica Bay is the last place in the United States that the Department of the Interior should drill.

We believe that there should be no drilling in Santa Monica Bay and, if drilling is to occur anywhere, it should occur in the areas furthest away from the shore--the Tanner/Cortes Bank area. We base this argument on analysis of factors such as those asserted by Dr. Ménard for a change in the methodology involved in establishing priorities. If principles such as Dr. Ménard advocates are followed, O.C.S. development might be acceptable in the Tanner/Cortes Bank area, but would never be acceptable in the Santa Monica/San Pedro Bay areas.

It is our understanding, moreover, that at the present time U.S.G.S. has accumulated adequate date for O.C.S. development only on the area that is bounded by the Tanner/Cortes Bank tract. It is our understanding the U.S.G.S. has completed half of a project to thoroughly map this area of the Tanner/Cortes Bank. It is the intention of the U.S.G.S. to complete this project by the end of this summer, 1975. It is also our understanding that the U.S.G.S. intends to do similar studies for the other areas contemplated for O.C.S. development once this study is complete. For the purposes of this agency, the prime value of the U.S.G.S. studies is that this material is disseminated to the public in general. With such material in hand, interested agencies and other organizations would be availed of the opportunity to comment intelligently and knowingly on the proposed areas which Interior intends to lease. This office is also well aware that the U.S.G.S. is faced with a tremendous undertaking if this requirement is made mandatory upon them. At the present time, the relevant office of the U.S.G.S. in Menlo Park, California, has at its disposal, full-time, only one oceanographic ship. It is our understanding that officials of this agency are now negotiating in Washington for additional ships. It is also our understanding that some other institutions in the area such as the University of Southern California will make available to the U.S.G.S. their equipment on a part-time basis. Only when relevant data has been compiled, and we have greater experience with offshore development should there even be consideration of leasing in the especially sensitive nearshore areas.

In conclusion, regarding the priority to be established for the leasing of Southern California O.C.S. lands if, indeed, leasing is the answer to O.C.S. development, it is our position that leasing must take place first in those areas furthest away from population centers. We request also that the U.S.G.S. be required to do a thorough seismological and geological study on all the areas that are being considered as possible leasing tracts. This information accumulated by the U.S.G.S. should be made available to all interested public agencies. Once all this information is gathered, and other relevant academic bodies and interested agencies have had the opportunity to comment on other criteria which must be included in an analysis of priorities, only then consider the feasibility of drilling in nearshore areas such as Santa Monica Bay, although we believe such areas should either never be leased or only in emergency circumstances.

2. Economic Guarantees to Local Governments

We have outlined the severe economic costs suffered by local governments as a result of oil spills and as a result of increased municipal services for onshore related development activities. We believe that relief from these economic burdens should be provided. We are aware that Congress is considering various energy reform legislation which addresses this problem. Possible solutions include an oil spill liability contingency fund, and no fault strict liability policy for oil spills, and revenue sharing to offset costs of added municipal services. We are further aware that government and industry are not opposed in principle to such measures and are indeed actively considering their adoption. But we do believe that these economic issues should be fully resolved before any lease sale takes place, for after that event it will be impossible to alter the terms of the lease.

3. Improved Drilling Regulations and Containment Capability

Before beginning an updated analysis of recent developments surrounding the questions of regulations and management, we recommend to the Department of the Interior that it reevaluate the comments that we made on these issues in our analysis of the Draft Program E.I.S. presented in February, 1975. At that time we took considerable efforts to comment on the fact that, to the present date, regulation of leases granted to oil companies by the Federal Government has not been characterized as either efficient or equitable. We recognize, of course, that since the time the first exposures of inadequate regulations were published, that significant changes have taken place in the relevant agencies of U.S.G.S. We are encouraged to see these signs of awareness and change on the part of the U.S.G.S. However, we must persist in our efforts to ensure that not only are regulations themselves more carefully formulated, but, also, that these regulations are adequately enforced so that, indeed, they are effective.

In the recent conferences and hearings concerned with O.C.S. development, many spokesmen for the oil industry have focused on the problem of safety. This problem, of course, centers around the issues of regulation and management. The Santa Barbara oil spill stands as a reminder to the need for safety.

Oil spokesmen for the industry have stated that there are revised O.C.S. orders which have been published by Interior. These new orders contain such constraints as frequent inspections and other safe technical guidelines. We are also informed that the Americal Petroleum Industry, on its own initiative, has developed RP's ("recommended practices") which concern such matters as control of safety devices on platforms and other safety maintenance items in the production of oil itself. It is the position of the oil industry at the present time that these two factors insure that oil drilling today will be "as safe as man can do at the present time."

Oil industry spokesmen have also been concerned with the problem of the capability of the oil industry to contain and clean up oil spills. Training programs concerning these areas have sprung up both in the Gulf states and in California. A training school took place in California this year which focused on blow out prevention. The training includes the use of well-kick simulators.

The oil industry has also spent considerable time and effort in developing increased contingency planning to cope with oil spills. Clean Seas Inc., is an organization of 16 oil companies which has an operating budget of $800,000, its operations built on a theory of rapid response to oil spills. This corporation has bought several ships and other vehicles that are used in quick cleanup. One spokesman for the industry has said that industry capability to cope with oil spills has increased 100% since 1969.

With respect to containment, however, technology is still not able to deal effectively with massive oil spills such as the Santa Barbara spill, particularly in heavy seas. We also note the importance of containment readiness capability.

At a recent conference on offshore drilling at the Los Angeles Museum of Natural History, Mr. Robert Ornstein of Seashore Environmental Alliance noted that no facilities for containment now exist south of Point Dume. Improved regulations must ensure the presence of containment capability.

We recommend further research, moreover, on both the effectiveness of the regulations that the U.S.G.S. has now proposed and on the proposed system of enforcement for these regulations. We also encourage Interior to discuss these matters with the California Division of Oil and Gas which administers the state-owned lands which produce oil for California. This agency has developed extremely efficient regulations and enforcement of regulations for the monitoring of these oil wells on state lands.

Offshore regulations of this agency include requirements and procedures for casing, setting depths and cementing, blowout prevention, drilling fluid, abandonment, well identification, and injection projects. Prior to drilling or altering a well, the operator must file a proposed program with the division for approval. If the proposed work is approved, specific performance tests to demonstrate compliance with the regulations are required during certain phases of the operation, and these tests are witnessed by a representative of the division.

The regulations also require that each offshore producing facility be equipped with integrated pollution-prevention and safety systems to close off possible pollution sources in case of trouble. Equipment to shut in wells, producing equipment, and pipelines are activated automatically when pre-set abnormal conditions of pressure, fluid level, gas concentration, or fire are detected.

In addition to well and production facility inspections, monthly surveillance flights are made over the offshore portions of Los Angeles and Ventura basins. During the flights, which are made in cooperation with the State Department of Fish and Game, each offshore drilling or producing facility is inspected and photographed, and natural seep activity is monitored.

Since 1896, there have been over 4,000 wells drilled into California's territorial waters. During 1974, there were an average of 2,244 active offshore wells of which an average of 1,579 wells were producing. The peak year was 1969 when an average of 1,916 wells were producing. To date, none of these wells has been the source of a major pollution incident.

The California State Lands Commission which administers state tidelands oil development has promulgated very strict regulations for the use of state lands. These regulations are expressly designed to give equal consideration to both the business community and the environmental community. But the main thread in the design is the public benefit.

This State Lands Commission is devoted to three basic policies when it comes to granting oil drilling permits or leases on State tidelands. First, the Commission wants to know it's safe; that is, that the operator abides by every drilling procedure and regulation the State mandates. The Commission also wants to know that the operator has the containment capability to recover any spillage or leakage that may occur. Accidents can happen, but the Commission wants to be assured that everything possible has been done to prevent one. The Commission also wants stronger-than-words assurances that the people who work on the offshore rigs have been properly trained to do their jobs.

To carry these policies, the Commission has adopted new procedures. The procedures include requirements for well-casing, blowout prevention, drilling mud programs, and facility safety inspections. Platforms must be equipped with integrated safety-control systems that will cause shut-in of all wells in the event of fire, pipeline failure, or other catastrophe. Well-control training will be conducted daily until each crew is thoroughly trained, and thereafter at least once each week for each crew. The company drilling supervisor will be responsible for instructing all drilling crews in blowout prevention and procedures. In addition, company and contractor supervisors are required to attend on an annual basis a formal blowout control training school.

Special emphasis on mitigation of oil spills has been written into the procedures. This does not mean that the Commission anticipates oil spills. The best of efforts may still fail, however, and there may still be some oil on the water. Plans must be made to minimize that possibility. There is therefore a contingency plan -- it is a plan designed to provide an outline of appropriate action to be taken in the event of a spill. It discusses: 1) initial abatement of an incident, 2) reporting methods, and 3) containment and cleanup of oil spills.

The Commission is aware that these procedures will add cost to the production of oil -- both to the industry and to the State -- but safety is the overriding consideration. Such procedures will get crude oil out of the ground -- and will do it with minimum risk to the environment -- not planned disaster, as some may think, but planned conservation.

The Commission also wants the operator's liability for damages clearly spelled out. If a spill should occur, or even a damaging leak, the operator should be required to pay for any damages that result -- and this principle should be firmly agreed upon before drilling begins. After the infamous Santa Barbara spill, it was almost six years before the oil company paid damages. The out of court settlement finally came about only after many lawsuits had been filed, and much of the original recovery work done by others. From now on, the State should demand advance recognition of liability on the part of the lessee for any accident or spill that occurs during operation.

We would hope that Interior would give consideration to adopting more stringent drilling regulations such as those used by the State Lands Commission, regulations which may well prevent another Santa Barbara-style oil spill disaster.

F. CONCLUSION

The purpose of this analysis is to raise questions not addressed, or inadequately treated, in the draft tract specific E.I.S. for Southern California O.C.S. leasing. Based on our analysis, however, we have arrived at the following conclusions:

1. An additional opportunity to comment on the tract proposal must be provided after release of the final program E.I.S. for expanded O.C.S. development nationwide and a decision to go forward with the national program.

2. Issues relevant to O.C.S. development nationwide and in Southern California must be adequately dealt with in either the program or tract document; these issues include the need for a coherent national energy policy, discussion of relative environmental impacts of O.C.S. development nationwide, degradation of air quality, onshore land use impacts, and coordination with the California Coastal Zone Conservation Commission.

3. We do not have sufficient data regarding our marine and coastal resources, and the potential impact of O.C.S. development on those resources. Studies providing the necessary data should be conducted prior to any decision being made regarding expanded O.C.S. development.

4. The cumulative environmental impact of all energy related development in Southern California needs to be considered.

5. Five geographically and environmentally dissimilar areas in Southern California warrant separate treatment.

6. The economic and environmental consequences of O.C.S. development are not fully understood. To better understand the potential impact of O.C.S. development, attention should be given to the 1969 Santa Barbara experience.

7. The air quality and land use impacts of expanded O.C.S. devleopment and the growth induced by that development have not been adequately analyzed.

8. The economic losses to local governments from oil spills and increased municipal services is inaccurate and incomplete.

9. Alternatives not thoroughly examined are conservation, other energy alternatives, and splitting exploration from production.

10. Consideration should be given to a moratorium on development in nearshore areas until more complete information on the impact of O.C.S. leasing has been developed.

11. The public should be compensated for diminution of property values, and loss of marine and recreational resources resulting from O.C.S. development. Local government should be compensated for economic losses resulting from oil spills and increased municipal services for onshore related activities.

12. More improved drilling regulations and containment mobilization capability should be required.

We request the Department of Interior to provide an additional opportunity to review the tract document after completion of a final, legally adequate, program E.I.S. for accelerated leasing nationwide and a decision is made to go forward with that program. We recommend that baseline information studies be completed and that further research be done on the unknown environmental consequences of O.C.S. development. Finally, we urge Interior to prepare, recirculate and consider a new draft E.I.S., giving careful attention to the issues raised in this analysis. Only then will the mandates of NEPA be satisfied.

PART TWO:

SCIENTIFIC ADVISORY COMMITTEE REPORTS

PART TWO

SCIENTIFIC ADVISORY COMMITTEE REPORTS

Members of the Scientific Advisory Committee

Dr. Richard L. Perrine, Chairman, Department of Environmental Science and Engineering, U.C.L.A.

Dr. James N. Pitts, Jr., Director, University of California Statewide Air Pollution Research Center, University of California, Riverside

Dr. Barbara J. Finlayson, Department of Chemistry, California State University, Fullerton

Dr. I. R. Kaplan, Department of Geochemistry, U.C.L.A.

Dr. James H. Whitcomb, Seismological Laboratory, California Institute of Technology

Dr. Malcolm S. Gordon, Director, Institute of Evolutionary and Environmental Biology, U.C.L.A.

Dr. J. T. Enright, Department of Biology, Scripps Institute of Oceanography

Dr. David Chapman, Department of Botany, U.C.L.A.

I. AIR QUALITY

An Evaluation of Portions of the Draft Environmental Statement, Proposed 1975 Outer Continental Shelf Oil and Gas General Lease Sale, Offshore Southern California

Dr. Richard L. Perrine
Professor of Engineering and Applied Science
and
Chairman, Environmental Science and Engineering
University of California,
Los Angeles

May 15, 1975

The evaluation has been prepared in response to a request originating with the City of Los Angeles. It will address several separate elements of the Draft Environmental Impact Statement. In summary, the Statement is a vast compendium of information. Most of the information (within my areas of competence) is correct and pertinent to policy decisions regarding offshore oil development. However, some strongly biased statements also are included. Perhaps of greatest importance, there is a failure to provide any logical development of clearly stated policy alternatives within the documents. The inference is of small, fragmented environmental and other adverse impacts, and the single important favorable impact of a newly available source of energy. Discussion of specific elements of the Statement is presented below.

Demand Forecasts: The Need for the Resource

The discussion on pages 290 and 300-310, Volume II, relies on out of date information gathered and published earlier (as by the California Resources Agency in January of 1973). It should be known that these data are no longer valid; they are simply a residue of our historic growth boosterism.

There is a very substantial amount of energy demand reduction which is both feasible and economically justified. One concrete example of what can be accomplished is the savings in natural gas consumption obtained by Los Angeles County through deliberate energy management in their Civic Center Plaza buildings in Pomona. As reported to the County by Mr. Kenneth L. Minor, Senior Energy Systems Engineer, Southern California Gas Company by letter of March 26, 1975, 1973 and 1974 usage of natural gas compares as follows:

	Actual 1973 Usage, Mcf	Actual 1974 Usage, mcf
January	1,842.3	1,466.0
February	2,244.1	1,516.0
March	2,488.6	828.5
April	2,458.0	778.0
May	2,265.7	648.3
June	1,583.7	648.1
July	945.9	528.3
August	1,934.0	464.4
September	1,476.1	545.6
October	1,788.3	503.0
November	1,878.9	778.4
December	2,476.7	1,053.3
	23,382.2	9,757.9

Mr. Gerald Reed, Manager, Programming and Standards, Mechanical Department, Los Angeles County, reports that this dramatic reduction was accomplished at a cost for control systems of less than $500, and so a net annual savings greater than $13,000. The buildings functioned in their normal manner throughout this period. Similar impressive reductions have been documented by County agencies in electric energy consumption where there has been an honest concern.

Transportation accounts for an unusually large fraction of the Los Angeles energy demand. It takes time to modify a transportation system. Thus while the immediate savings feasible in other sectors perhaps are not possible, changes within the time frame envisaged for development of offshore oil production are easily achieved by modification of our transportation system. The Rand Corporation report, "How to Save Gasoline: Public Policy Alternatives for the Automobile," Sorrel Wildhorn, et al., R-1560-NSF, October 1974, catalogs the mix of new technology and policy which in their view is most reasonable and what savings can be accomplished by its implementation. Our own recent work, "Transportation: Is There a Choice" (a substudy from "Population and Energy in Los Angeles: The Impact of Different Rates of Growth on Transportation, Air Quality, Housing and Open Space"), Environmental Science and Engineering, UCLA 1975, in a similar fashion indicates the extent to which traditional demand forecasts may be obsolete. We find that even without introduction of any new technology, and with no loss in personal mobility, it is possible by 1990 to reduce per capita energy needs for transportation by about 40%. Technological gains could carry us well beyond this point should we really wish to consider feasible alternatives. Of course, purveyors of fuel are not likely to press for such a relaxed-demand future. But at present there is a sufficient body of information suggesting that there can be jobs, comfort, less congestion and greater individual choice through less energy-intensive futures that any serious attempt at evaluation should at least reflect these possibilities.

The Impact Statement as written, with unjustifiably high growth rates for energy demand, incorporates an exaggerated sense of urgency. There is honest need for new energy resources. But it is not as pictured. The exaggerated picture, in turn, leads to pressure for rapid leasing of offshore resources as contrasted with managed, prudent and relatively risk-free development.

Impact on Air Quality

The language of the content included within pages 183-189 of the Impact Statement infers that no significant adverse effect on air quality would result from either routine OCS operations or as consequences of an accident. Yet the actual data included lead to a directly opposite conclusion.

Consider the likely consequences of a spill on a lesser scale than the Santa Barbara Channel spill, such as 1000 barrels per day, but located shortly beyond the three-mile distance from the Santa Monica-Palos Verdes shoreline. The Statement properly notes that as much as one third of this spilled oil, if not burned on the sea surface, would volatilize and become an air pollutant. The remaining approximately two-thirds of heavier ends would be moved across the sea surface, broken down by bacteria and/or dissolved in the water column, if not recovered.

But of the volatile share of the spilled oil, essentially all would constitute photochemically reactive hydrocarbons (all except C-1 to C-3 hydrocarbons). Contrary to statements made, many of the most common atmospheric conditions would sweep this material onshore to form an enlarged, but not dispersed plume traversing the air basin. Typical trajectories could carry the giant plume north and slightly west into the eastern San Fernando Valley, or north and then eastward toward Pomona and beyond ("Research Investigation: Air Pollution and City Planning, Case Study of a Los Angeles District Plan," Environmental Science and Engineering, UCLA 1972).

Because of the amount volatilized, the reactive hydrocarbons in the atmosphere from a major (1,000 barrels) spill could easily constitute 50 tons per day; fully 25% of the largest quantity estimated as small enough when released within the air basin to meet Clean Air Act requirements ("The Impact of the Energy Crisis and Estimates of Future Air Quality," Environmental Science and Engineering, UCLA 1975). But the plume would traverse a much narrower path than the dispersed fumes from auto exhausts over the entire air basin and the other usual sources. Thus the air quality impact of a large spill would be an order of magnitude or more worse than the 50 tons per day of ordinary emissions. That is, within the area contacted by the downwind plume, atmospheric conditions would likely be similar to basin-wide emissions of more than 500 tons per day of reactive hydrocarbons. And more unfortunately, these emissions likely would be accompanied by a relative shortage of nitric oxide, a pollutant itself but one which throughout much of our atmosphere has the virtue that it scavenges oxidant. Thus the downwind air quality effects at a moderate distance from a major spill, or even moderate-sized incident, deserve careful analysis and consideration. Techniques are available; they just have not been applied in the preparation of this Impact Statement.

The Availability of Qualified Manpower

A substantial portion of the Environmental Impact Statement under the heading of "Mitigating Measures" discusses regulation to avoid adverse consequences, enforcement of regulations, and spill contingency plans. All the contents of this section have little meaning unless fully qualified individuals are available at all times, as needed to staff OCS activities.

Unfortunately, the petroleum industry historically has not seen fit to staff until the need was urgent and immediate. A direct consequence of this method of operation is that for nearly 20 years, education for petroleum production-related activities has languished in the doldrums. Such preparation has been provided only in a limited number of schools, and in many of these only within small, weak and understaffed departments. There is no academic incentive strong enough for this to change. Recent discussion has brought out that if current proposals are to be implemented, including proper staffing, we somehow need to telescope about 20 years-worth of educating and experience-gathering into a several-year time span. We need this much of our recent past production rate of qualified professionals right now---not years hence ("The Appropriate Pace of Offshore Drilling," paper by Dr. Jack White and discussion, Conference on Offshore Oil, American Enterprise Institute for Public Policy Research, March 1975). The shortage of qualified individuals preparing for the industry has been a subject for debate year after year at Society of Petroleum Engineers meetings. Little change has yet occurred.

Again, unfortunately, time is needed both for basic educational preparation and to gain real working experience before individuals are given responsibility for complex offshore operations. To jump into operations without this needed reservoir of talent is the single action most likely to lead to large scale spills or other disasters. This means that a prudent policy would involve a carefully managed deliberate growth of OCS activities, recognizing these constraints, not an instantaneous jump to the OCS tomorrow. The Impact Statement shows no evidence of concern for these well-understood facts.

A proper, well thought out mix of OCS energy development activities with development of alternative sources, and conservation, could minimize pressure within these critical manpower areas. For example, almost nothing has been done to encourage enhanced recovery from already-discovered oil fields. While manpower is needed for this activity, too, and it must be properly trained, the requirements are nowhere near as severe. Environmental safeguards needed are much less restrictive. Equipment and specialized help can be made available much more easily in case of need. Perhaps of greatest importance, substantially different sources of manpower can become useful. Thus nowhwere near as critical pressures are involved.

This discussion leads naturally to consideration of material included under the heading "Alternatives to the Proposed Action." Many alternatives are listed, but evaluation is sufficiently uneven that there is no opportunity to make a fair comparison of alternatives without a very great deal of additional work. The implied assumption is obvious, and brings us back to the inferences of the demand projections noted earlier---presumably there will be no limit to future American energy waste; therefore we must produce from every available energy source with minimal concern for any adverse consequences.

I AIR QUALITY

An Assessment of the Air Quality Aspects of the

"Draft Environmental Statement" for the Proposed 1975 Outer Continental Shelf Oil and Gas General Lease Sale Offshore Southern California

and of the

Analysis of Draft Environmental Impact Statement Regarding "Proposed Increase in Acreage to be Offered for Oil and Gas Leasing on the Outer Continental Shelf"

by

James N. Pitts, Jr., Ph.D.
Professor of Chemistry and Director
University of California Statewide Air Pollution Research Center
University of California, Riverside, CA

Barbara J. Finlayson, Ph.D.
Assistant Professor of Chemistry
California State University
Fullerton, CA

May 19, 1975

SUMMARY AND CONCLUSIONS

This report was prepared in response to a request of May 7, 1975 from the Office of the City Attorney, City of Los Angeles, for comments on the treatment of the potential impact on air quality of offshore oil drilling and related operations presented in

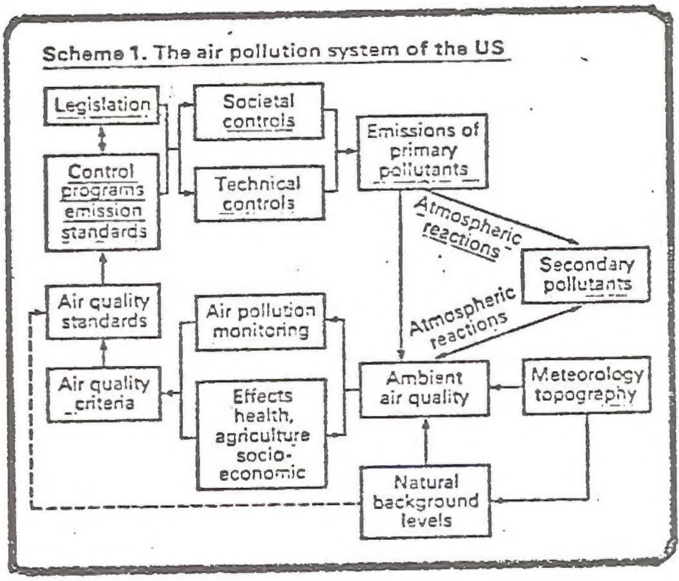
- The Draft Environmental Statement (EIS), Volumes 1-4 for the proposed 1975 Outer Continental Shelf Oil and Gas General Lease Sale Offshore Southern California prepared by the Bureau of Land Management.
- The Analysis of the Draft EIS prepared by the Mayor and City Attorney of Los Angeles, February 1975, and submitted on behalf of the Southern California Council of Local Governments.

It is our opinion that the Draft EIS generally treats the potential air quality impact of Outer Continental Shelf (O.C.S.) development on Southern California in a superficial manner that is incomplete, frequently misleading, and in some aspects contradictory. Thus, for example, the EIS does not incorporate the latest scientific information on emissions, transport, and chemical and physical transformations of air pollutants, as well as trends in air quality in the South Coast Air Basin (SCAB). Additionally the potential impact on the ambient levels of such known toxic pollutants as ozone, nitrogen dioxide, the peroxyacyl nitrates, carcinogenic polycyclic aromatic hydrocarbons, etc., and others suspected of being harmful to man such as sulfate and nitrate aerosols, is given inadequate or no consideration. Similarly, insufficient attention is paid to the potential air pollution impact of the proposed development on agricultural crops and on possible further degradation of visibility in the SCAB.

Finally, the EIS does not attempt to quantify insofar as possible the potential air pollution impact using the best available data (or estimates when actual experimental data are lacking) and current state-of-the-art airshed models for photochemical air pollution.

However, since the Draft EIS did not appear to be dated, we were unable to ascertain whether or not some of these omissions resulted from the lack of availability of such information when the EIS was being prepared.

It is generally agreed among air pollution experts that the potential impacts of such a complex problem might best be treated by a detailed analysis of each of the relevant scientific, medical, and socioeconomic elements of an overall air pollution system as shown in Figure 1.


Scheme 1. The air pollution system of the US

It appears that this EIS discusses in an uneven fashion only selected aspects of such a system while neglecting others.

General conclusions similar to ours are stated in the critique of the Draft EIS prepared by the air pollution experts of the Scientific Advisory Panel and in the actual "Analysis of the Draft EIS." We concur with and strongly support their views. Evidence upon which we base our conclusions and our support for the position on air pollution impact taken in the Analysis of the Draft EIS is outlined in some detail in the main body of this report and the main points summarized below.

- The pollutant emission inventories presented in the report are based on 1972 data without comment as to their accuracy when, in fact, the uncertainties are often large. Thus we feel it inadvisable to locate any major pollutant source upwind of the centers of population without first quantifying the anticipated increase in total emissions of each pollutant due to the new source. Furthermore, for some pollutants (e.g., SO_x and NO_x) the relative contributions of stationary and mobile sources in SCAB are predicted to change significantly between 1972 and 1980 in part because of the increasing impact of the energy crisis and associated increased use of high sulfur fuels. Hence the EIS should compare the anticipated increase in the emissions of each pollutant associated with O.C.S. development with the inventories for 1975, 1980, 1985, 1990, etc.

- The transport and dispersion of pollutants from the lease areas to the coastal and inland regions of SCAB are not adequately discussed. Thus while at least three maps presented in the Draft EIS show the direction of the prevailing winds during the day to be onshore during the summer peak oxidant months, it is repetitively stated in the EIS that the sale areas, which are located in some cases only 3 miles from the shore, are too far from the coast to contribute significantly to the pollutant concentrations inland. Actually the wind direction maps in combination with recent studies showing the transport of pollutants from Long Beach over large distances (60 miles or more) appear to contradict these statements. Thus in our opinion, the combination of hydrocarbon emissions released several miles offshore and transported to the mainland with the large quantities of NO_x emitted in that region by fossil fuel power plants, refineries, motor vehicles, etc., may lead to an increase in oxidant at the coast and well inland. Experimental and theoretical modeling studies are required to assist in clarifying this point.

We fully recognize there are some serious limitations in the availability and accuracy of certain relevant air pollution data and in one's ability to predict absolute changes in ambient pollutant levels (especially of secondary pollutants such as ozone) using mathematical models. Nevertheless, such models are presently widely used by government agencies, private industry, and research organizations to predict the relative change in pollutant levels associated with a major development. Of necessity they form an integral part of any EIS for a proposed activity such as airport expansion, construction of a new fossil fuel power plant or refinery, and indeed, even major shopping centers. In short, state-of-the-art modeling studies of the air quality impact of the O.C.S. development constitute a crucial aspect of the Draft EIS and should be provided.

- Little or no attention is paid to the possible economic impact on agriculture, a major industry in SCAB, associated with the increased levels of such severe phytotoxicants as ethylene, ozone, PAN, etc. For example, extensive crop damage has occurred recently in Orange County when in November, 1973, during one air pollution episode, large amounts of marketable crops were severely damaged by smog with concomitant substantial economic losses.

In summary then, the introduction of an additional, possibly significant source of pollutants at sites which are adjacent to a heavily populated area where the air quality standards for photochemical oxidant are already exceeded more than 200 days per year, must be approached with a great deal of cautious, thorough, and insofar as possible, quantitative reasoning. These criteria do not appear to have been met in the Draft EIS.

GENERAL ASPECTS OF AN EIS: THE OVERALL AIR POLLUTION SYSTEM

In dealing with the potential impact of major projects such as offshore drilling which will involve many complex interactions with the environment, it is useful to examine the possible consequences of the operation in terms of an overall system (Fig. 1). This logically relates the scientific, technical, medical, social, economic, and political elements of the problem and incorporates appropriate and highly significant feedback loops.

The diagram shows schematically that the primary pollutants, such as nitric oxide and hydrocarbons, which are emitted and subsequently transported via meteorological and topographical phenomena undergo chemical and physical transformations in the atmosphere leading to the formation of secondary pollutants (e.g., nitric oxide gas → nitrate particles), many of which are known to have effects on human health, agricultural crops, visibility, and materials. If the relationship between the ambient concentrations of a given pollutant and its effects on human health is known, a primary air quality standard (A.Q.S.) can be set for that pollutant. Emission control programs are then established to reduce ambient levels of that pollutant to such a degree that the A.Q.S. is not exceeded more than once per year. The loop is completed through the legislative, societal, and technical elements of the system.

Prior to considering the Draft EIS in detail, let us first consider in more depth that portion of the air pollution system dealing with the emission, transport, and chemical and physical transformations of the pollutants and their impact on receptors.

- Emissions

In order to describe adequately the pollutant emission inventory for a region, one must know accurately which pollutants are emitted, the magnitude of the emissions, the source locations, the temporal variation in the emission rates, and the process responsible for the generation of the pollutants (the latter for defining possible control measures and their effectiveness).

The magnitude of the emissions is often particularly difficult to define. Thus while the emissions of SO_x from the combustion of fossil fuels can be estimated with reasonable accuracy from the sulfur content of the fuel, the emissions of many other pollutants depend on such a variety of complex factors that accurate calculation of the ultimate emissions are impossible. The formation of nitric oxide (NO) from N_2 and O_2, for example, during fossil fuel combustion depends in a complex manner on the combustion temperature, the amount of O_2 present, and the residence time in the combustor. Similarly, hydrocarbon emission rates from combustion or refining processes are not readily calculated.

The emission of such pollutants, then, must be carefully monitored in order to arrive at an accurate emission inventory. This has been carried out for NO_x in the South Coast Air Basin, for example, by KVB Engineering as reported to the California Air Resources Board in September, 1974. Comparable studies have not yet been completed and released officially for hydrocarbons and SO_x and the uncertainties in their emission inventories are large.

- Source Location and Transport Phenomenon

It is important to recognize that pollutants emitted at the western end of the South Coast Air Basin, under typical summer and early fall daytime meteorological conditions, are carried far inland by the prevailing winds. Hence a pollutant source located near the coast has the potential for impacting a much greater fraction of the population in SCAB than one located in the eastern portion of the air basin.

Thus source location and the transport of pollutants are extremely important parameters. In this regard two recent ARB-supported studies, one by Metronics, Inc., the other by Meteorology Research, Inc., have documented this inland transport of pollutants in the South Coast Air Basin using fluorescent tracers and ozone measurements respectively. Thus Figure 2 shows that pollutants from a fossil fuel power plant in Long Beach can be transported inland over distances of 60 miles or more within a single day.

- Chemical and Physical Reactions in the Atmosphere (Transformation)

As mentioned above, the reactions of the primary pollutants to form secondary pollutants are extremely important in that the effects of the secondary pollutants on health, visibility, and plants may far exceed those of their precursors. For example, simple hydrocarbons at levels commonly encountered in urban air have no known health effects on man. However,

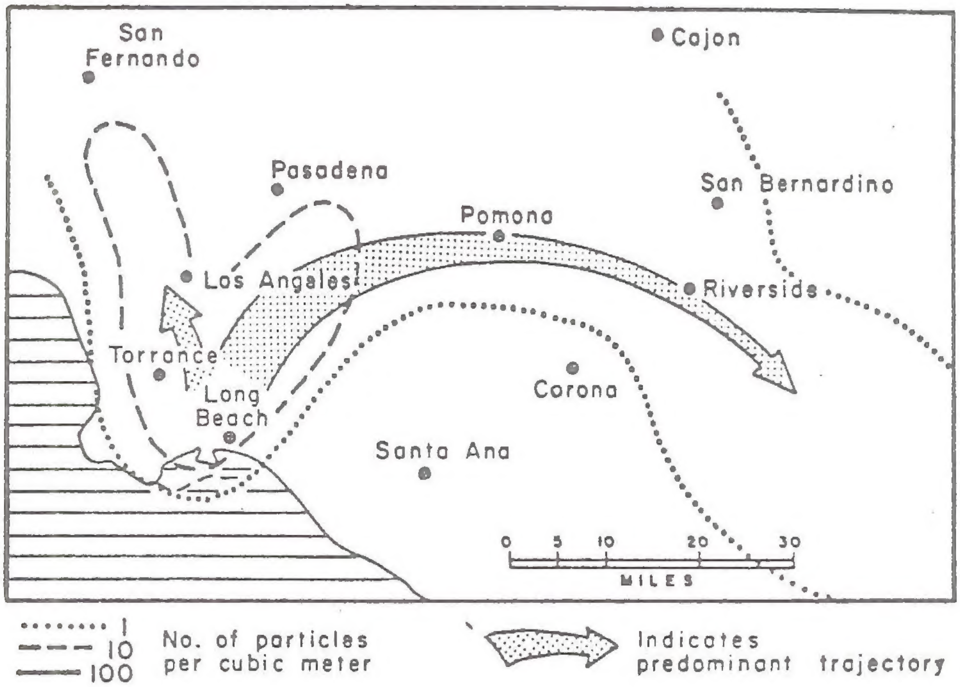


Figure 2. Tracer test summary, August 3-4, 1973, Long Beach source--elevated to simulate industrial pollutants. Contours represent an effective average concentration of tracer material from a normalized source of 5 X 10^{14} particles, released 0900-1500 hours, PST, on August 3 from a power plant stack. (Metronics Associates, Inc., Technical Report No. 197, July 1974.[3])

they react with NO_x in the presence of sunlight to form ozone, as well as other toxic chemicals such as PAN and NO_2.

In addition, secondary particulate formation in the atmosphere is of prime importance in SCAB. Thus the atmospheric oxidation of gaseous SO_2 and NO_x produces sulfate and nitrate serosols which significantly degrade the visibility and may well be toxic. Similarly, organic aerosols are formed by a variety of reactions, including that of ozone with olefinic hydrocarbons. This reaction also produces an intermediate which enhances the oxidation of gaseous SO_2 to particulate sulfate.

- Impact on Receptors

Finally, the pollutants' (primary or secondary) impact on a receptor—human, plant, or material. The primary gaseous pollutant SO_2, for example, in sufficient concentrations adversely affects the human respiratory system and is a serious phytotoxicant. Particulate polycyclic aromatic hydrocarbons such as benzo-(a)-pyrene also have well documented carcinogenic effects; however, to date no air quality standards exist for these species even though they are formed as a result of incomplete combustion of fossil fuels and are widely dispersed. The simplest olefinic hydrocarbon, ethylene, does not affect human health at ambient concentrations but does attack field crops and flowering plants such as orchids.

Secondary pollutants such as ozone, peroxyacetylnitrate and NO_2 attack man's respiratory system and adversely affect plants such as lettuce, citrus trees, ponderosa pine, etc. Rubber, of course, degrades in the presence of ozone due to cross linking or scission of the polymer chains. Additionally, acid particulates corrode materials such as metals.

- Mathematical Modeling

As stated earlier, emission, transport, and transformation processes can be combined in a mathematical model to predict pollutant concentrations at a receptor. Currently the results from such mathematical models contain many uncertainties, particularly when used to predict secondary pollutant concentrations. However, they do serve to give a "best estimate" of the relative increase in ambient levels associated with a given increase in emissions.

SPECIFIC COMMENTS ON AIR QUALITY ASPECTS OF THE DRAFT ENVIRONMENTAL STATEMENT

Some specific air quality aspects of the Draft EIS are now considered in more depth in the context of the preceeding discussion.

Volume 1

- The report includes estimates (Vol. 1, pp. 17,18) that

> "refinery capacity in California will have to be increased by approximately 30 to 55 percent by 1985. ---If this sale takes place, production is expected to flow to existing facilities in the Los Angeles/Long Beach area. It may be considered feasible to establish a new major production refinery in Ventura County---."

The possible impacts on air quality of this proposed increase in refinery capacity is not treated adequately in Volume 2. For example, it is not obvious to us that sufficient accurate data exist at the present time to support the statement (Vol. 2, p. 189) that

> "other refineries and related uses in the Los Angeles area do not violate the air quality standards established by state and local governments."

This being the case, it is difficult to see how the conclusion is reached that increasing refinery capacity would result in "lowering the amounts of emissions" (Vol. 2, p. 189).

Such crucial statements should be supported with data on the current emissions of each pollutant from existing refineries and the corresponding capacity/production data, proposed control measures to be implemented on new and existing facilities and data showing the reduction to be achieved for each pollutant by these controls, and finally, the anticipated total emissions per day of each pollutant when the refineries operate at full capacity. This information is essential in the EIS because of the source location, the reactions of hydrocarbons in ambient air, and the well-documented meteorology of the area.

In addition, the possible construction of a refinery in Ventura County should be examined in detail since hydrocarbon emissions from a major refinery may be sufficient to cause an unacceptable increase in oxidant levels when they interact with the NO_x emissions from the major fossil fuel plant and motor vehicles in that area. In-depth modeling studies using best-available, or where necessary, experimentally determined accurate input data are essential prior to construction or expansion of such refinery facilities.

In Volume 1 (pp. 682-706) a discussion of the past and present air quality of the two air basins located within the study area is given. The following comments pertain to that section:

- In discussing hydrocarbons and their effects (p. 686), no mention is made of the effect of ethylene on plants.

- No mention is made of the distinction between the two classes "reactive" and "nonreactive" hydrocarbons. This is important because it is not total hydrocarbon emissions which are of interest in photochemical smog formation, but rather the reactive hydrocarbon portion. We recommend that only methane be considered nonreactive since all other hydrocarbons react to some extent over a 6-8 hour period of downwind transport.

- Finally, no mention is made of the importance of oxygenated hydrocarbons. Formaldehyde and other carbonyl compounds, for example, help to initiate and accelerate formation of photochemical air pollution.

- The term "photochemical oxidants" (p. 687) should be more specifically defined as consisting primarily of ozone, but also of smaller amounts of PAN, NO_2, etc. In addition, it should be pointed out that "oxidants" are formed by the reactions of all hydrocarbons in the presence of NO_x and sunlight, with methane, however, reacting sufficiently slowly to be considered "nonreactive."

- In light of the recent controversy over oxidant measuring techniques, the method of measurement of these pollutants used to derive the concentrations in Table II-115 (p. 688) should be stated.

- The statement is made on page 689 that "[Primary] particulate matter did not consistute a major problem for the [South Coast] air basin," [authors inserts]. This is rather misleading since secondary particulate matter formed by chemical reactions in the atmosphere is of major concern in the area as discussed in the recent report for the ARB, "Characterization of Aerosols in California (ACHEX). In addition, no discussion of the importance of the size and composition of the particulate for the resulting impact on human health or visibility is given.

- In Table II-116, no estimate is given of the accuracy of the emission inventory, which as discussed above, is poor in many cases. The use of three significant figures in the data also incorrectly implies an accuracy which doesn't exist. Furthermore, the term "organic gases" should be clarified; does it refer to the emission of "reactive" or total hydrocarbons? If the former, what definition of "reactive" is used?

- The average wind speeds at ground level are reported on page 691 without regard to the variation of wind speed with height which can play an important role in pollutant transport, as shown by the Metronics and M.R.I. studies.

- Table II-117 is also presented without regard for accuracy of the emissions inventory. In addition, it is misleading to present the data for 1972 when the impact of the offshore drilling will not be felt until the 1980s (Vol. 1, pp. 16,17). By this time it is generally agreed that stationary sources will have become significantly more important relative to mobile sources than in 1972.

For example, according to the KVB report, by 1980 NO_x emissions from stationary sources will account for approximately 50% of the total NO_x emitted in the South Coast Air Basin. Hence one must show not only the current emissions data but also those predicted for 1980, 1985, 1990, etc., with and without the proposed development, in order to more accurately depict the relative contribution of the proposed project.

- The trends in pollutant concentrations shown in Tables II-119, II-121, and II-122 are not very meaningful in that the location of the monitoring stations at which the data were recorded are not given. Thus, for example, while ozone concentrations have, in fact, decreased in downtown Los Angeles, in the eastern portion of the basin they have been increasing since 1972. Figure 3, for example, shows the trend in oxidant concentrations in San Bernardino which experienced its worst year in history in 1974. The minimum in 1972 appears to reflect favorable meteorological conditions rather than a true decrease in oxidant formation.

Volume 2

In Volume 2 of the Draft EIS the possible impacts of the proposed offshore drilling are discussed. The following comments pertain to that presentation:

- The statement is made on page 183 that

> "The quality of air over the sale area could be degraded from several types of sources, including exhaust emissions from stationary power units, source vehicles, and by the accidental release and combustion of oil or gas. Because of the distance of the lease areas from shore, the impact of exhaust emissions will be small and unimportant."

Such a conclusion is hardly consistent with the known transport of pollutants over large distances and the proximity to shore of several lease areas where major reserves are predicted. Thus Figure I-1 (Vol. 1, p. 2) shows that the San Pedro Bay and Santa Monica Bay tracts lie very close and sometimes touch the 3-mile line. These areas contain a large fraction of the total recoverable reserves in the 5 sale areas shown in Figure I-1 (Vol. 1, p. 1). Furthermore, as shown in Figure II-23 (Vol. 1, p. 57), Figure II-24 (Vol. 1, p. 59), and the diagram on page 704, the prevailing daytime winds in the summer are inland. Hence the above quote

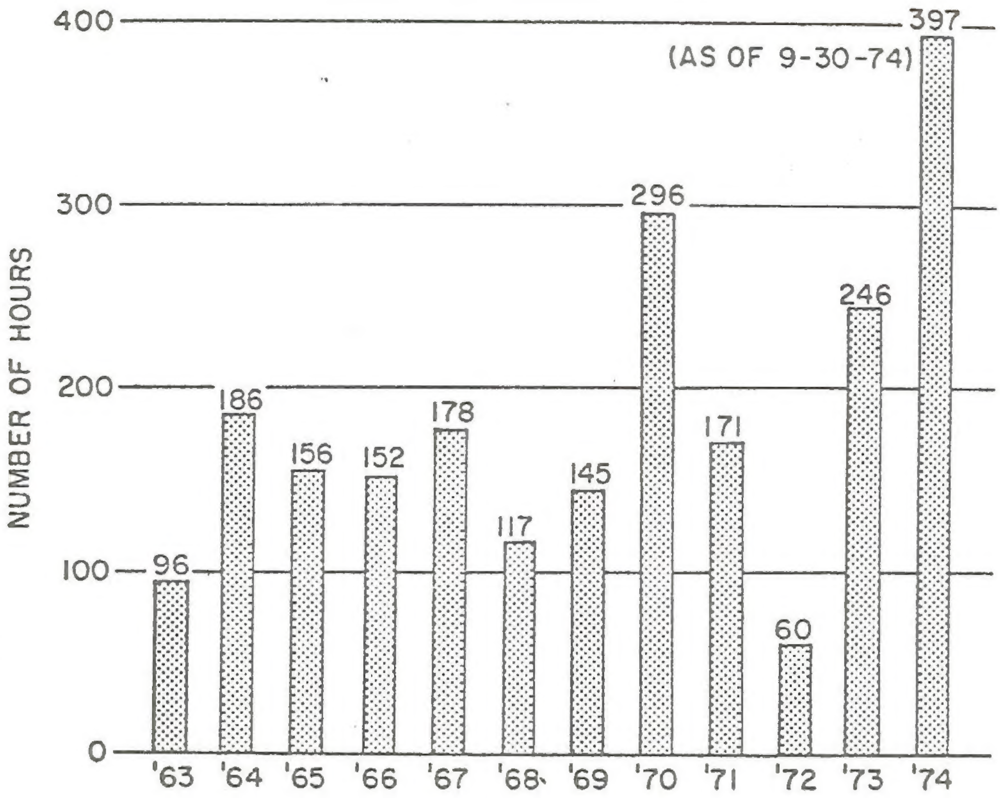


Figure 3. Number of hours per year for which the hourly average oxidant concentration equaled or exceeded 0.20 ppm at San Bernardino air monitoring station. (Data from San Bernardino County Air Pollution Control District.)

does not appear to be supported by facts. This omission of a detailed consideration of the important transport phenomena occurs repeatedly throughout this discussion (e.g., p. 183, last paragraph; p. 185, second and last paragraphs; p. 186, first, second, and last paragraphs; p. 189, second paragraph; p. 267, first paragraph; p. 415, first paragraph).

- The particulate introduced into Los Angeles and Orange Counties due to an oil well blowout and fire would in our opinion be more than a "nuisance factor through soiling," (p. 184). Incomplete fuel combustion, which must certainly occur in such an event, produces particulates containing polycyclic aromatic hydrocarbons, many of which are carcinogenic. (See also p. 415, last paragraph). The impact on visibility could also be significant.

- The estimate that the "air pollution carry over from one day to the next is only four percent" (p. 184) is neither explained nor supported. In fact, our knowledge of atmospheric chemistry suggests that the carry over, admittedly difficult to quantify, is quite a significant factor in photochemical smog formation.

- The minimization of the impact on the offshore islands due to the "moisture content of the air" (p. 184) requires explanation and support (see also p. 189, second paragraph, and p. 415, first paragraph). In some cases, the presence of moisture promotes the formation of toxic compounds (e.g., nitrous acid).

- Some corrections in the text are needed on p. 184. For example, what is a "volatilized particulate"? Does the EIS really mean "nitrous oxide" and "sulfur monoxide" would be produced?

- What dust and fumes are expected during installation of onshore pipelines and facilities? Over what period of time would these occur?

- The statement with respect to onshore operations relating to natural gas that "no adverse impact will occur during normal operation procedures" (p. 188) should be supported with data and modeling studies. How likely is abnormal operation? What impacts would it produce?

- It is stated that "it is not possible at this time to determine the magnitude, range, or geographical regions that would be affected" from consumer usage of natural gas. While input data of the desired accuracy may not exist, the best currently available data, and estimates where necessary, whould be used in conjunction with a validated model in order to make a "best guess" at the possible impacts.

- As mentioned above, it is not obvious that the impact of increased refinery capacity will be to lower the emissions (p. 189).

- Data should be presented to support the contention that

  > "the added increase according to the Air Pollution Control Districts, will add far less than one percent to the existing air quality and will be within the allowable standards." (p. 415)

- Data on the pollutants emitted and the quantities during a fire after a gas well blowout should be presented to support the dubious statement that "mainly--carbon dioxide and water vapor" are emitted (p. 415).

CRITIQUE ON
SITE SPECIFIC DEIS
FOR
1975 OCS OIL AND GAS GENERAL LEASE SALE OFFSHORE SOUTHERN CALIFORNIA

BASELINE CHEMICAL PROPERTIES AND OPERATIONAL EFFECTS ON QUALITY OF ENVIRONMENT

BY

I.R. KAPLAN
PROFESSOR OF GEOLOGY AND GEOCHEMISTRY
UNIVERSITY OF CALIFORNIA

Introduction

This DEIS is a significant improvement over the DES 74-90 issued last year for the increase of acreage for oil and gas leasing on the OCS. Unlike the previous report, this report specifically deals with local problems and attempts to direct the discussion to local problems. It expands much of the discussion previously made and attempts to frame the consequences of exploration and drilling in terms of its effect on the Southern California coastal environment.

The document is divided into four volumes. Volume I deals with baseline knowledge relating to the physical, chemical, biological and historical background of the environment. Volume II deals with the effect of drilling, production, transport and accidents on the environment. Volume III lists a set of Appendices dealing with policy, legislation and environmental documentation. Volume IV is composed of a set of charts issued by the U.S. Geological Survey.

As these comments are largely aimed at evaluating the validity of the document regarding the chemical environmental factors, I will address myself to this confined area only.

First, it is necessary to state that the DEIS did not have any apparent falsifying statements. From its nature, it appears to have been compiled from information supplied by several sources. In some cases, this information was used without any apparent review, whereas in others, an attempt was made to define processes in terms of the specific environment. Nowhere in the

DEIS is an attempt made to suggest that an accident or pollution could not result, even though reasonable efforts are made to prevent this from happening. In fact, in the very first page (i) of Volume I under item 3, the paragraph begins:

> " All tracts offered pose some degree of pollution risk to the environment..."

Baseline Information

The sections itemizing the nature of the chemical environment are largely described in Volume I pages 46-52, 86-97, 315-324, 682-717.

The discussion of natural seeps on pages 46-52 gives little useful information on variation of flow rates or chemical character of the seeps. A map would have been very useful in locating the occurrence of the seeps in relation to land seeps, fracture zones and present lease locations.

The discussion on pages 86-97 on Chemical Oceanography does not do justice to the state of knowledge of the chemical parameters. Each of the parameters such as nutrients, salinity, oxygen and trace metals receive one or two-page attention. For example, Fig. II-46 on page 89 shows a salinity versus depth curve, but does not give exact location or time of year. It is therefore out of context and meaningless. On page 92, a statement is made that oxygen concentrations in spring and summer are higher in surface waters than fall or winter. This is not explained and on face value might be incorrect, because surface waters in winter are (a) less saline and (b) colder. However, in spring and summer the level of saturation is probably greater. On page 93 in paragraph 2, a statement is made that the "oxygen minimum layer is consistently found below the salinity-minimum layer whenever it is present". This does not mean much as water masses are defined by densities and not just salinity.

In a discussion of marine pollution caused by outfall from sewage or drainage, some misleading statements appear. For example, on page 712, in paragraph 3, I quote, "Sediment core samples taken in Santa Barbara Basin (SCCWRP, 1973) indicated that metals and chlorinated hydrocarbon concentrations have been relatively constant over the last 100 or more years". This statement in fact contradicts the published data given in the Three Year Report (SCCWRP, 1973). A quote on page 180 of the above reference reads as follows:

> " Figure 6-21 shows the profile of mercury concentrations from the dated sediment layers in the Santa Barbara Basin. In addition to the regular box core samples, samples were obtained using a 'bootstrap' corer, which provided samples dating back 1,400 and 1,500 years. The concentrations of mercury have tended to increase fairly steadily in the last 150 years; sediment mercury concentrations are now approximately twice as great as they were in the 1820's. This observation is consistent with that of Weiss et al. (1971), who found approximate doubling of mercury concentration in dated glacial layers laid down in the Arctic in the last few decades. These authors have attributed this effect to an increased degassing of mercury from the earth's surface, possibly brought about by man's activities. Although the higher concentrations of lead in the recent sediments appear to be due to increased use of leaded gasoline in southern California, the source of mercury that has caused the recent concentration increases may be much more global in nature.".

There is no discussion of chlorinated hydrocarbons from Santa Barbara Basin in this report, but two figures (Fig. 6-24, off Whites Point Outfall and Fig. 6-29, in Santa Monica Bay), clearly show a marked concentration increase of about two orders of magnitude in surface (hence, recent) sediment.

Environmental Impact of Drilling and Production

In general, sections dealing with operational impacts give an accurate account of the state of knowledge. In Volume II, an attempt is made to use information available from analyses of formation waters, drilling mud and spills in other OCS areas as well as in the 1969 Santa Barbara spill. A statistical analysis of risks is made on previous experience to estimate risks of large or small spills.

The information outlining chemical changes which may result from such accidents are mainly correct. However, there is little definitive information given. For example, general reference is made in several places of paraffinic and aromatic hydrocarbons, but little precise data is presented to enable the reader to judge for himself the changes which may occur during alteration of seeps. For example, on page 54, Fig. III-7 gives a chromatograph of an alkane fraction of a seep oil, with virtually no explanation. Statements are made in several places of the toxicity of binuclear aromatic compounds, but no data is given for the composition of petroleum presently being produced offshore southern California or onshore wells which may sample oil-bearing Tertiary formations which underly the OCS.

A reasonable description is given for blow-out prevention and accident controls and operation inspection. There was no evidence for a policy to monitor the marine environment during exploration and production to determine if environmental pollution is occurring.

Comments and Recommendations

The DEIS fails to present a coherent picture of the chemical environment. In part, this is possibly due to the necessity to summarize an enormous amount of information. The net result is that much of the information is so brief that it serves no useful purpose. Experts in the field understand and know all the properties which the DEIS attempts to describe, whereas those not familiar with the chemical environment, probably could not rationally utilize the condensed information without going to the original sources. Unfortunately, Volume I does not appear to contain a Bibliography.

It is apparent that the most likely parameters to be affected during production will be the trace metals and organic components, especially the petroleum-derived hydrocarbons. The DEIS only gives a one-page discussion on trace metals in coastal waters, no description of the baseline trace metal concentration in sediments and no account of the prevailing organic carbon content or hydrocarbon content of the water column or the sediment. Admittedly, there is little information to present but some does exist as outlined in the book by Emery ("The Sea Off Southern California", 1960).

It is apparent that although much is known about the southern California Bight, a great deal of information is still needed to interpret changes in the environment which may result from exploitation of petroleum in the OCS. In particular, we have little knowledge of the present distribution of hydrocarbons in different sediment types. Although some data have been reported for straight-chain hydrocarbons, almost no published data exist for the more toxic aromatic compounds. The lifetime of hydrocarbons in sediments versus the water column is unknown.

The question of environmental monitoring appears to be neglected. Where a spill is substantially large and near the surface, oil can be observed from vessels or aircraft, but where it is released continually from small leaks at depth it may not easily be detected visually and the source may not be identified. What will be the monitoring procedures? Who will be responsible for implementing them?

An important question which will certainly arise in disputes, is the identification of oils in the surface waters of the OCS. What criteria will be used to differentiate petroleum produced from OCS drilling, natural seeps and imported (or exported) petroleum dumped from tankers? It is apparent that such criteria have to be established early. In particular, crude oil exposed to the atmosphere begins to alter and is converted to tars, in this case, the straight-chained paraffins are first to change. As these are the components most frequently measured, it is obvious they may be the least useful for interpretive purposes.

III SEISMICITY

ANALYSIS OF THE "DRAFT ENVIRONMENTAL STATEMENT FOR THE PROPOSED 1975 OUTER CONTINENTAL SHELF OIL AND GAS GENERAL LEASE SALE OFFSHORE SOUTHERN CALIFORNIA, OCS SALE No. 35"

James H. Whitcomb[+]

May 14, 1975

[+] Seismological Laboratory, California Institute of Technology, Pasadena, California 91125

SUMMARY

This analysis of the "Draft Environmental Statement for the Proposed 1975 Outer Continental Shelf Oil and Gas General Lease Sale Offshore Southern California, OCS Sale No. 35" is primarily limited to the potential for earthquake-caused oil spillage in the lease area. The description of the geological and tectonic environment is generally adequate with the exception of the omission of the Newport-Englewood fault on the tectonic map showing faulting in the offshore area; this fault is judged important to decisions affecting the San Pedro Bay lease area.

I am in general agreement with this document's estimate of frequency of future magnitude 6.0 or larger earthquakes in the offshore Southern California area, about one every 10 to 14 years or four to six in 60 years. A major omission in the document is the lack of reference or use of the lease area's only source of long-term seismicity, the Southern California earthquake catalog. From this catalog it can be seen that the Santa Rosa-Cortes South area appears to have significantly lower earthquake hazard than the northern lease areas. Statistically, a magnitude 5.0 or larger earthquake can be expected in the general offshore area every 3 to 5 years, or twenty events in 60 years.

No mention is made of earthquake hazard in the environmental impact section of the document, with the apparent conclusion that earthquakes pose no increased risk for oil spillage. In my opinion, this conclusion is overly optimistic. It appears to be based mainly on case histories of land-based earthquakes and their effects on land-based structures, and it assumes an optimistic estimation of the state of the art in identifying active faults. The present state of the art in identifying active faults, especially under water, is a matter of considerable scientific debate.

For several reasons, pipelines are especially vulnerable to rupture from fault motion and alternatives should be used whenever possible.

An earthquake hazard that has not been considered in the document involves the effect of local earthquakes on the water environment surrounding drilling platforms and pipelines. Significant permanent horizontal or vertical displacement of the bottom on which rests a drilling platform or exposed pipeline can cause large sudden currents that can possibly do major damage to drilling platforms, pipelines, and vertical pipe and casing of producing wells. The potential occurrence of a major earthquake in a highly developed offshore oil field creates the possibility of an oil spillage from so many sources that existing or contemplated techniques and organizations could not cope with the repair and clean-up operations in time to prevent significant impact on the environment. Physical and engineering considerations in relation to this phenomenon deserve considerably more attention than they appear to have received.

This leasing and development project should be considered in relation to other oil-related activity in the area. An oil spill "budget" estimating amounts from all natural and man-caused sources should be made, and environmentally acceptable but reasonable limits should be imposed.

SCOPE OF THIS ANALYSIS

My analysis of the "Draft Environmental Statement for the Proposed 1975 Outer Continental Shelf Oil and Gas General Lease Sale Offshore Southern California, OCS Sale No. 35" (herein referred to as the DES) is primarily limited to the geological and geophysical aspects of the document, especially as regards the earthquake potential in the vicinity of the tracts for lease and the associated environmental hazards from those earthquakes. The major environmental hazard from earthquakes in offshore oil production is oil spillage. Therefore, this analysis is directed towards factors that relate to the risk of spillage.

DESCRIPTION OF THE ENVIRONMENT

The description of the geology and tectonics of the Southern California offshore area is generally well done. In the section "Description of the Environment" in Volume I and in Appendix 10 of the same name in Volume III, the offshore area is described as a complex of islands and deep basins bounded and formed by faults that became active 11-20 million years ago. There is evidence of tectonic activity at least as recently as in the Quaternary period, which began 2 million years ago (DES, Volume I, page 445; hereafter written as DES, I, 445). Faults that show evidence of Quaternary or late-Quaternary motion are generally considered to be currently active. Thus, from the structure of the Southern California offshore area and the geologic record, there is every indication that at least some of the numerous and complex fault systems in this region are now active.

The DES does a relatively complete job of listing the major felt earthquakes in the borderland region in Appendix 13 (DES, III, 523). However, one of the most important earthquakes relevant to the lease areas, the 1933 Long Beach earthquake adjacent to the San Pedro Bay area, does not have its associated rupture, the Newport-Englewood fault (Richter, 1958, p. 497; and Jennings, 1973), included on the tectonic map showing the important faults of the area (DES, IV, 12). This fault, in addition to being important in considerations of hazard to the adjacent lease area, is an important factor for well-to-shore pipeline structures.

It is correctly concluded in the DES that the chances are small for destructive shaking offshore from any but a "great" earthquake (magnitude larger than 7.1, Richter, 1958, Figure 28-1) that is located inland. Smaller earthquakes that are located close to production facilities offshore can cause damage from both shaking and fault displacement. It is desirable therefore to attempt to estimate the potential for earthquakes offshore of Southern California. While there are obvious limitations to calculating this from the limited sample of past earthquakes, it is the only option open to us at this time. It is interesting to note that, as shown in Figure 1 (Richter, 1958, Figure 28-1), of the six "great" earthquakes since 1769 in the latitudes of the areas in question, four are onshore and two are offshore. The two offshore events could imply that the northern-most lease areas, Santa Rosa-Cortes North and Santa Monica Bay, face a significant earthquake hazard because earthquakes of this size affect a large area. Figure II-17 in the DES (I, 34), which shows events of magnitude 6.0 or greater since 1912, also leads to the conclusion that Santa Rosa-Cortes North, Santa Monica Bay, and perhaps the San Pedro Bay areas are most hazardous. A magnitude 6.0 or greater earthquake can be statistically expected near these areas every 10 to 14 years depending on whether only offshore events are counted. This means four to six magnitude 6.0 or larger events in the immediate production areas could occur during the estimated 60-year life of the anticipated oil development. These numbers are similar to those obtained in the DES (III, 186).

One of the useful methods of estimating the hazard from larger earthquakes is by mapping the relative distribution of smaller shocks over a long period of time; for example, the U. S. Geological Survey has made this technique of mapping seismicity an important part of their earthquake research program. It is therefore puzzling that the DES does not use or even reference the Southern

Figure 1. Major earthquakes in the California region (from Richter, 1958, Figure 28-1).

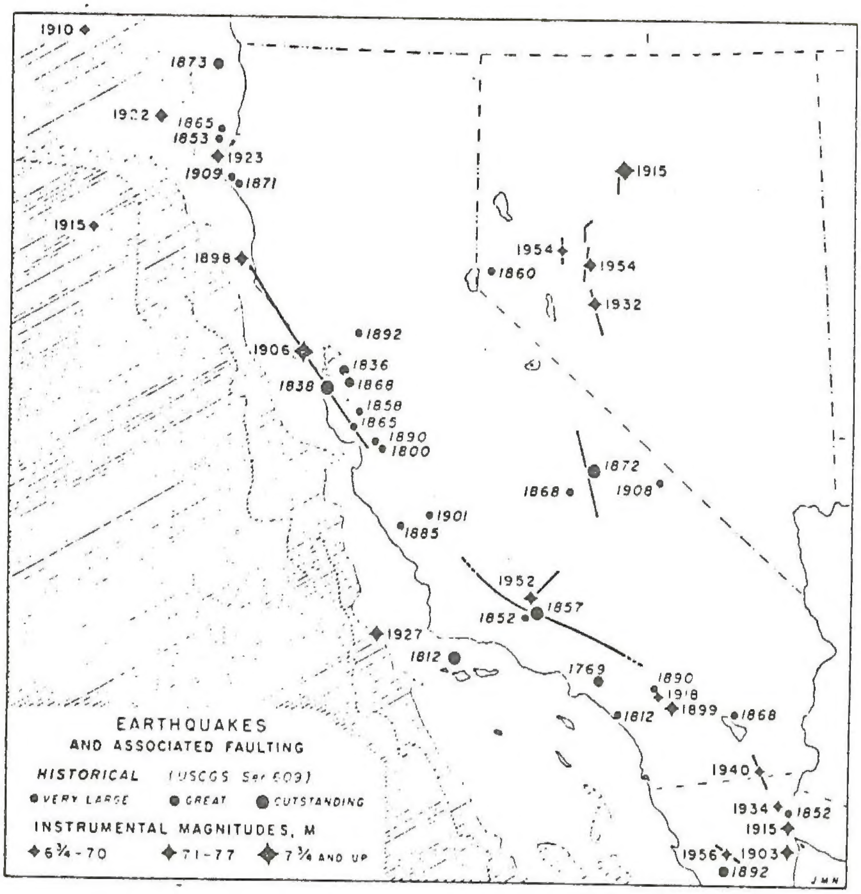


FIGURE 28-1 *Larger earthquakes of the California region. Extent of faulting indicated.*

Fig. 1

California earthquake catalog, which is virtually the only source of long-term seismicity for Southern California (Hileman et al., 1973).

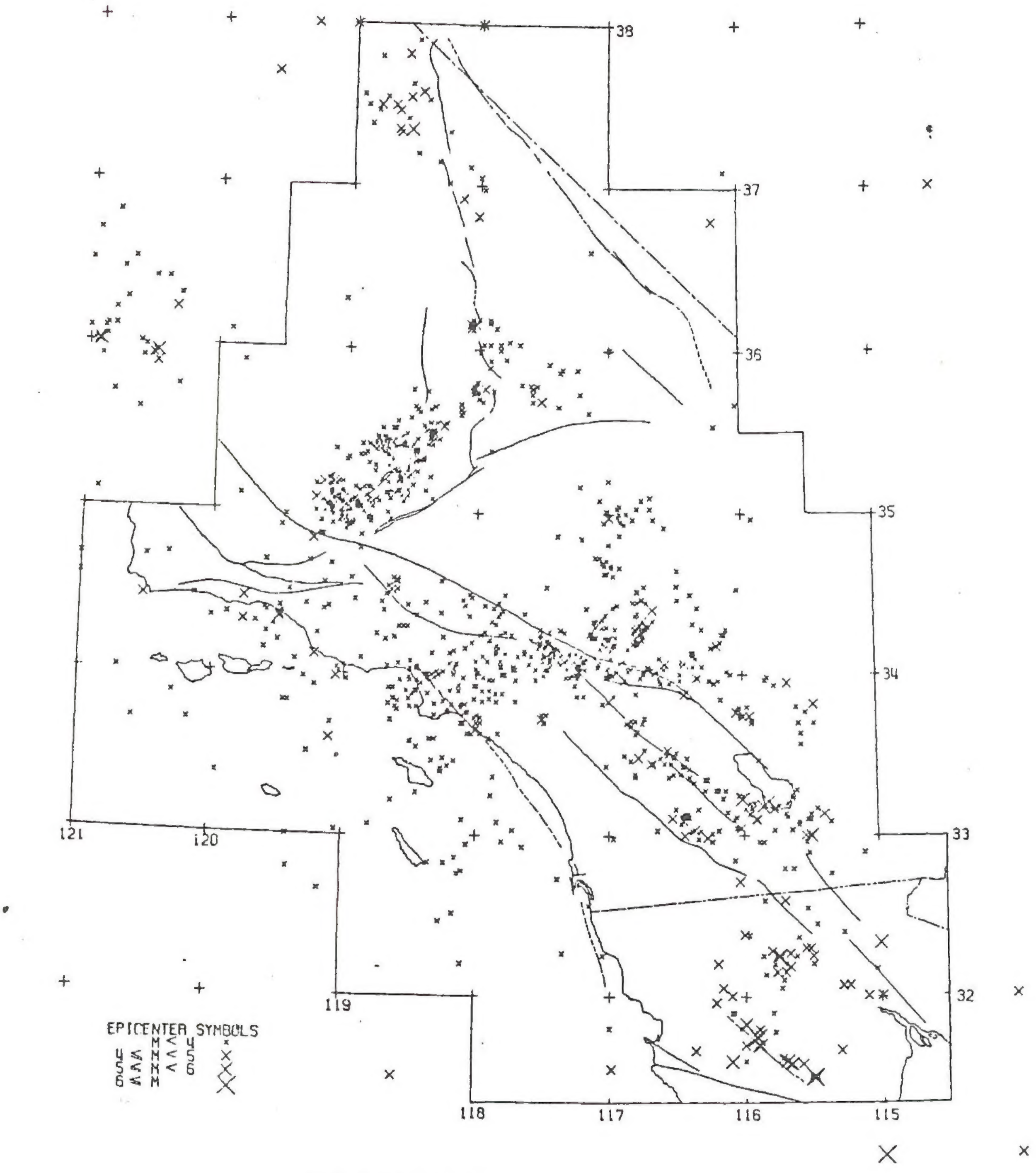
Figures 2a through 2i illustrate seismicity plots from Hileman et al. (1973) updated through 1974. Figures 2a through 2f include all events located during specific years in Southern California by the CIT Seismological Laboratory. Figures 2g, 2h, and 2i show summary seismicity from 1932 through 1972 for all events equal to, or above, magnitudes 4.0, 5.0, and 6.0 respectively. The summary plot for earthquakes equal to or greater than magnitude 4.0, which should be fairly complete in the offshore area, indicates significant activity in and near the Santa Barbara-Santa Catalina lease area. Thus, only the Santa Rosa-Cortes South lease area has no historical record of significant earthquake activity, although it has shocks smaller than 4.0 in the Figure 2c plot. Even this, however, is no guarantee of quiescence. A count of magnitude 5.0 or larger earthquakes in the general offshore area from Figures 2 implies an occurrence rate of one per 3 to 5 years depending on how the count is made, which would mean 12 to 20 offshore events of this size during the estimated 60-year life of the anticipated oil development.

ENVIRONMENTAL IMPACT OF THE PROPOSED SALE

No mention is made of the hazards of earthquakes in the section "Environmental Impact of the Proposed Sale" (DES, II, 1). Apparently this implies that earthquakes and their potential effect on increased risk of oil spills can be ignored or avoided in offshore oil development. However, this is far from being clear and is, in my opinion, overly optimistic.

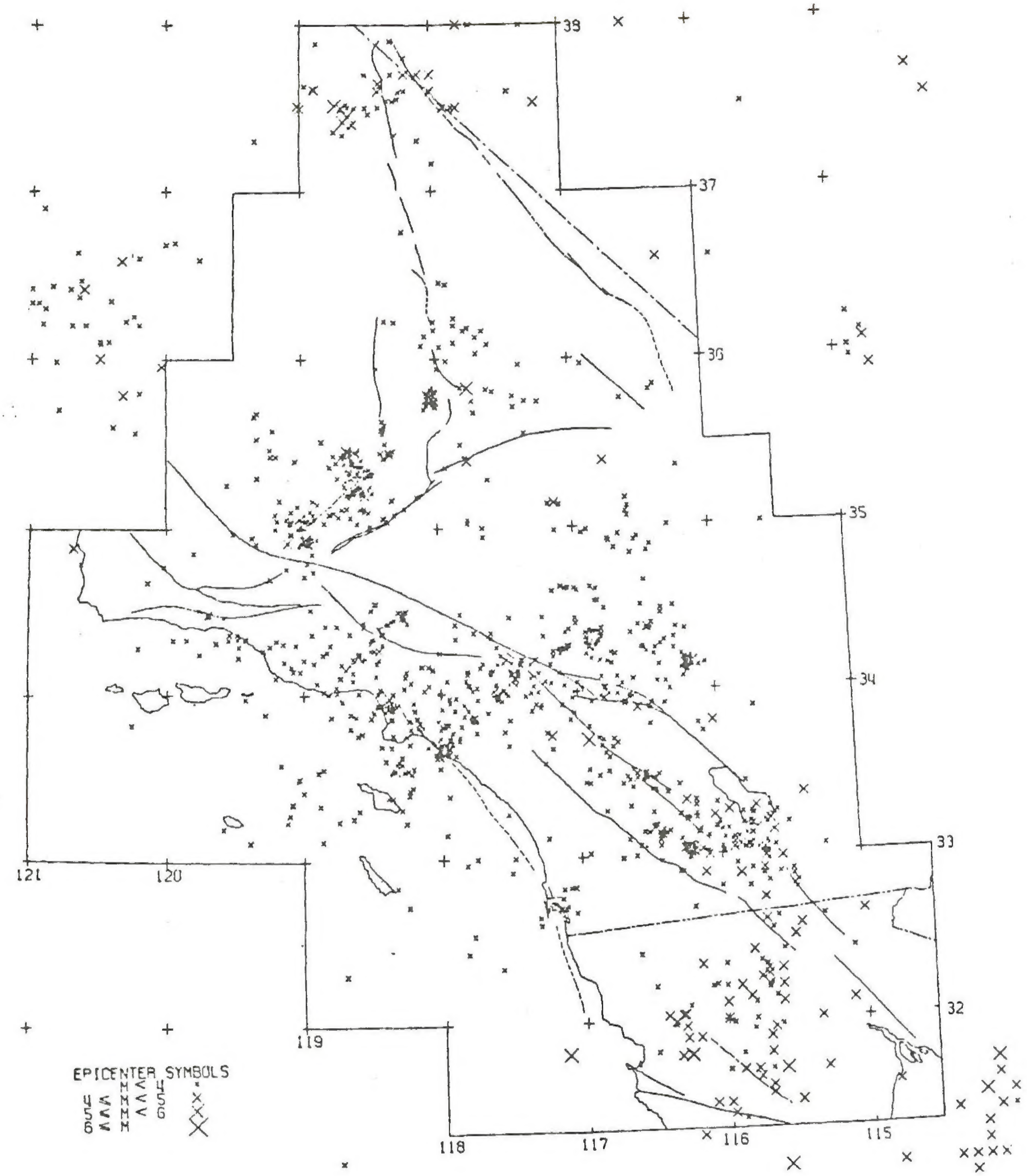
Much of the case in the DES for a low estimation of risk from earthquakes is based on 1) case histories of land-based earthquakes and their effect on land-based structures, especially the effects of the 1971 San Fernando earthquake; and

Figures 2. Figures 2a through 2f include all events located during specific years in Southern California by the CIT Seismological Laboratory. Figures 2g, 2h, and 2i show summary seismicity from 1932 through 1972 for all events equal to, or above, magnitudes 4.0, 5.0, and 6.0 respectively. All figures are taken from Hileman *et al*. (1973).



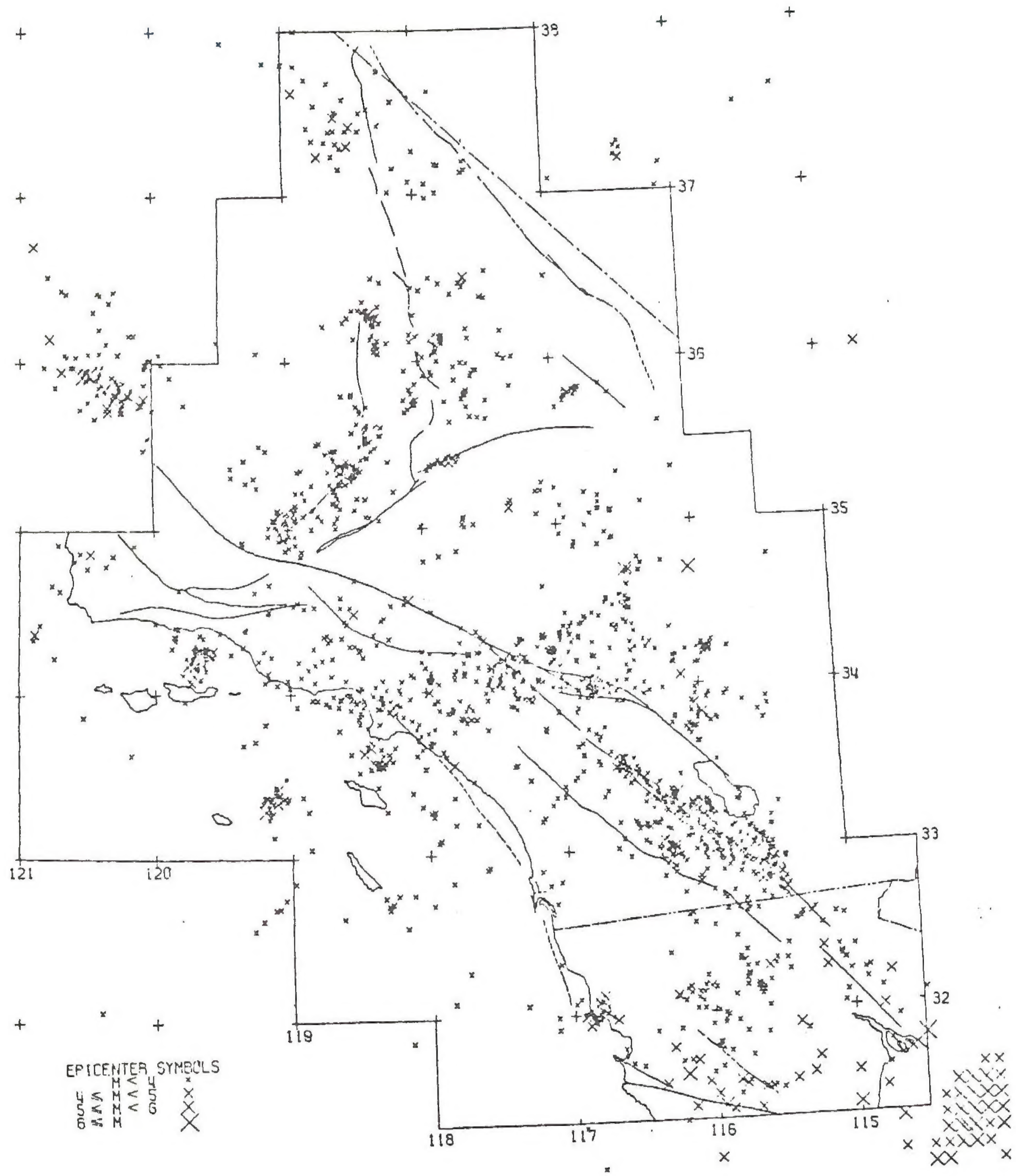
1955 THROUGH 1959. ALL EVENTS

Fig. 2a



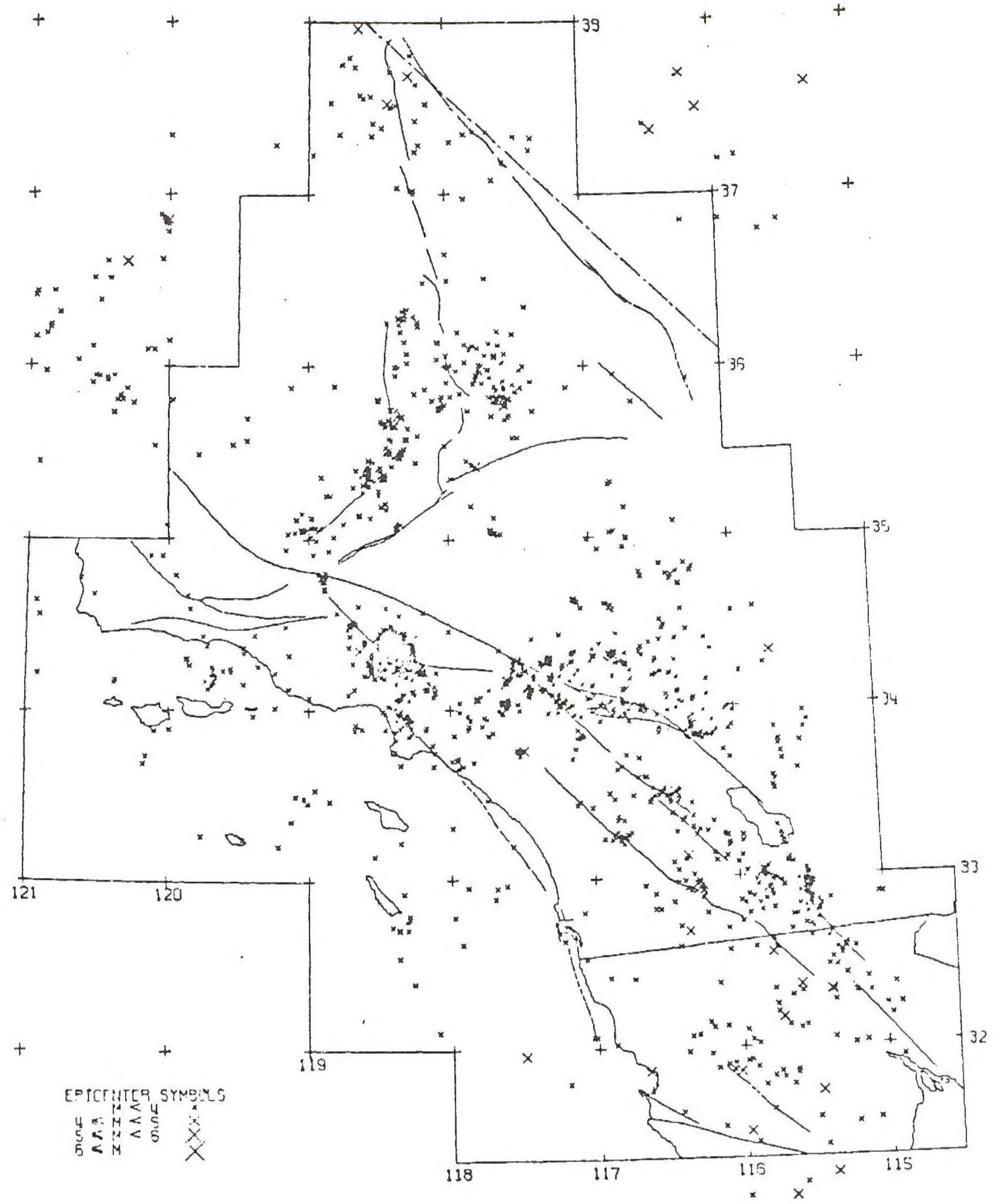
1960 THROUGH 1964. ALL EVENTS

Fig. 2b



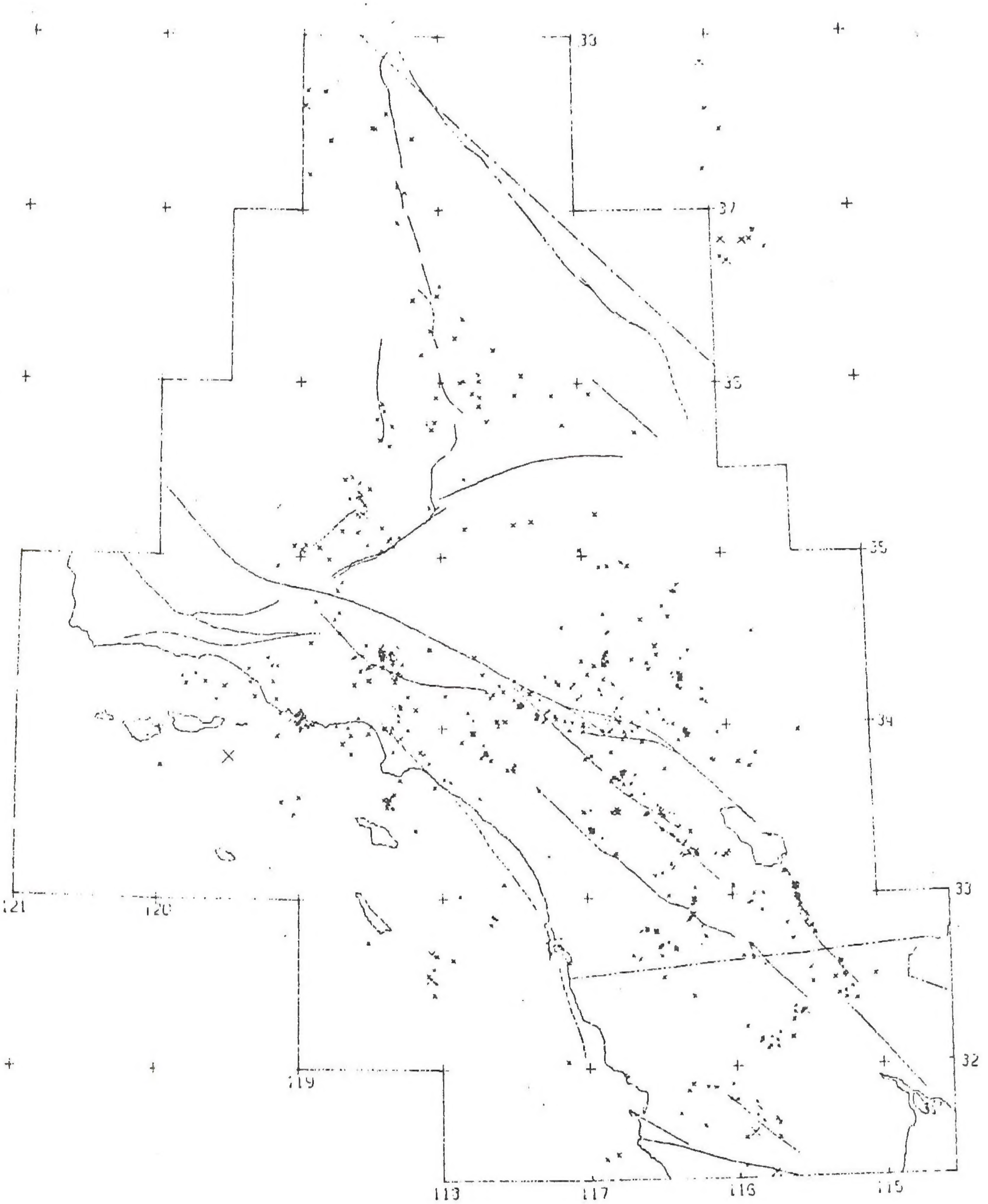
1965 THROUGH 1969, ALL EVENTS

Fig 2c



ALL EVENTS 1970 THROUGH 1972

Fig 2d

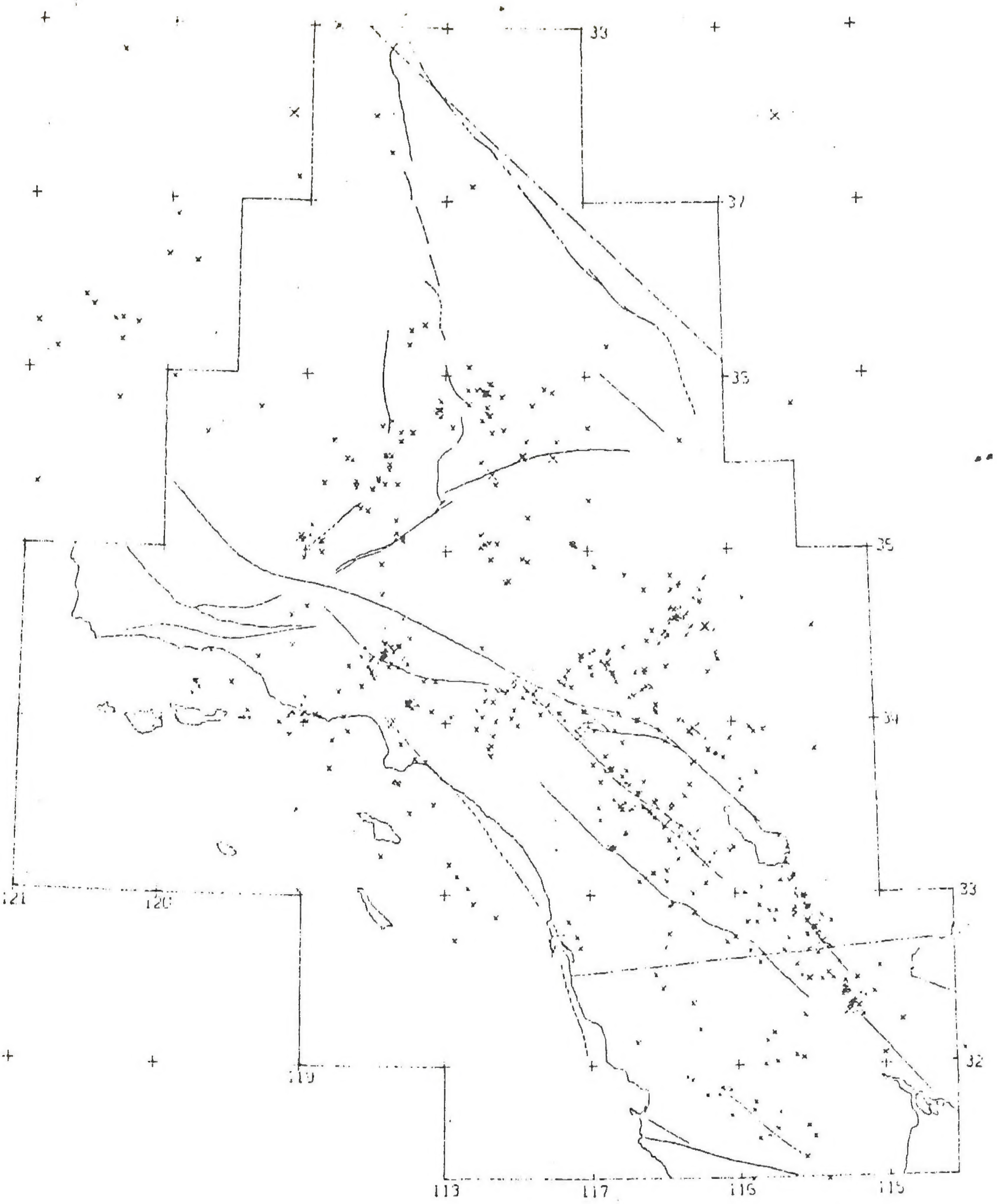


1973 ALL EVENTS PRELIMINARY

EPICENTER SYMBOLS
M < 4
4 ≤ M < 5
5 ≤ M < 6
6 ≤ M

363

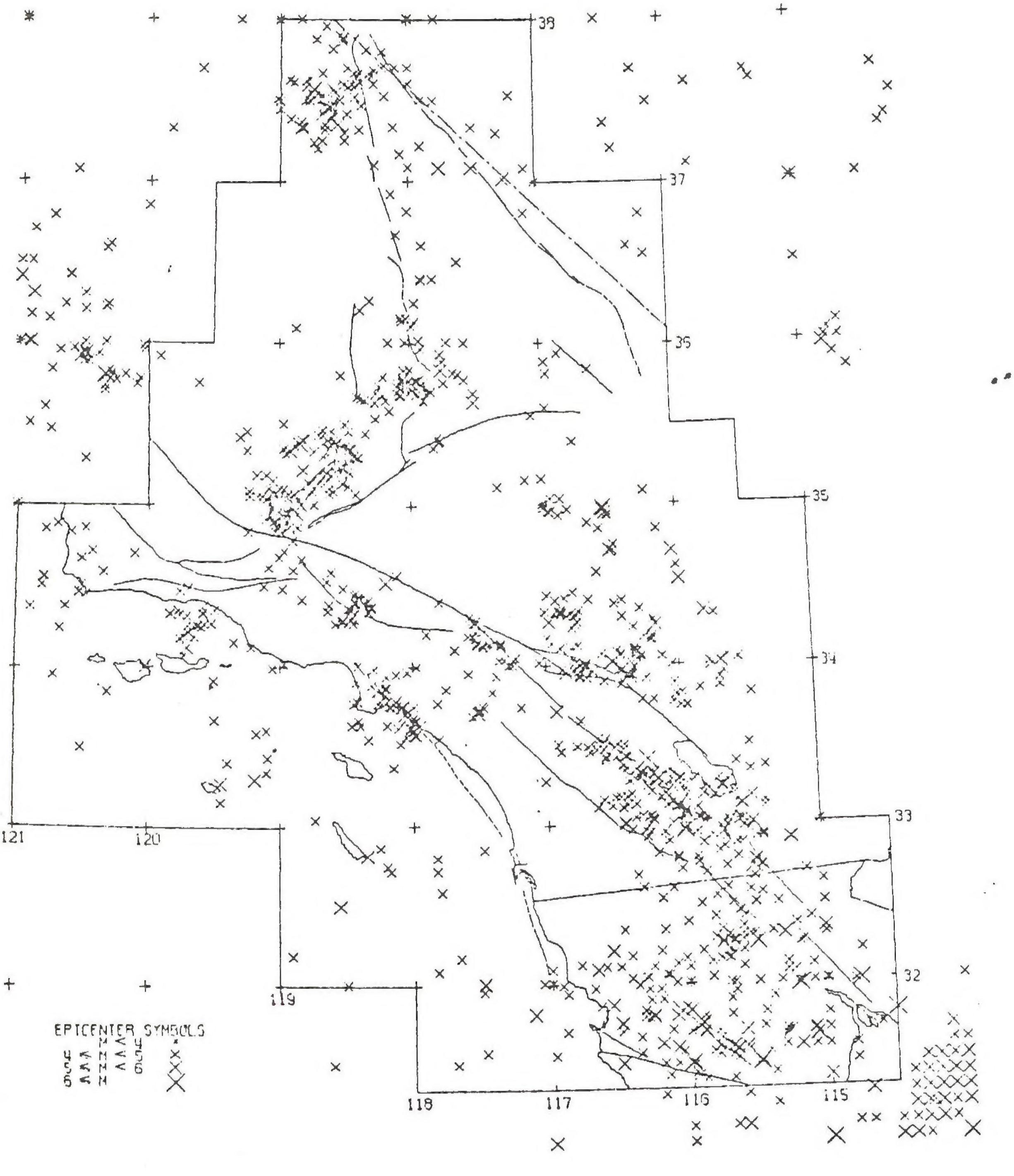
Fig. 2e



1974 ALL EVENTS PRELIMINARY

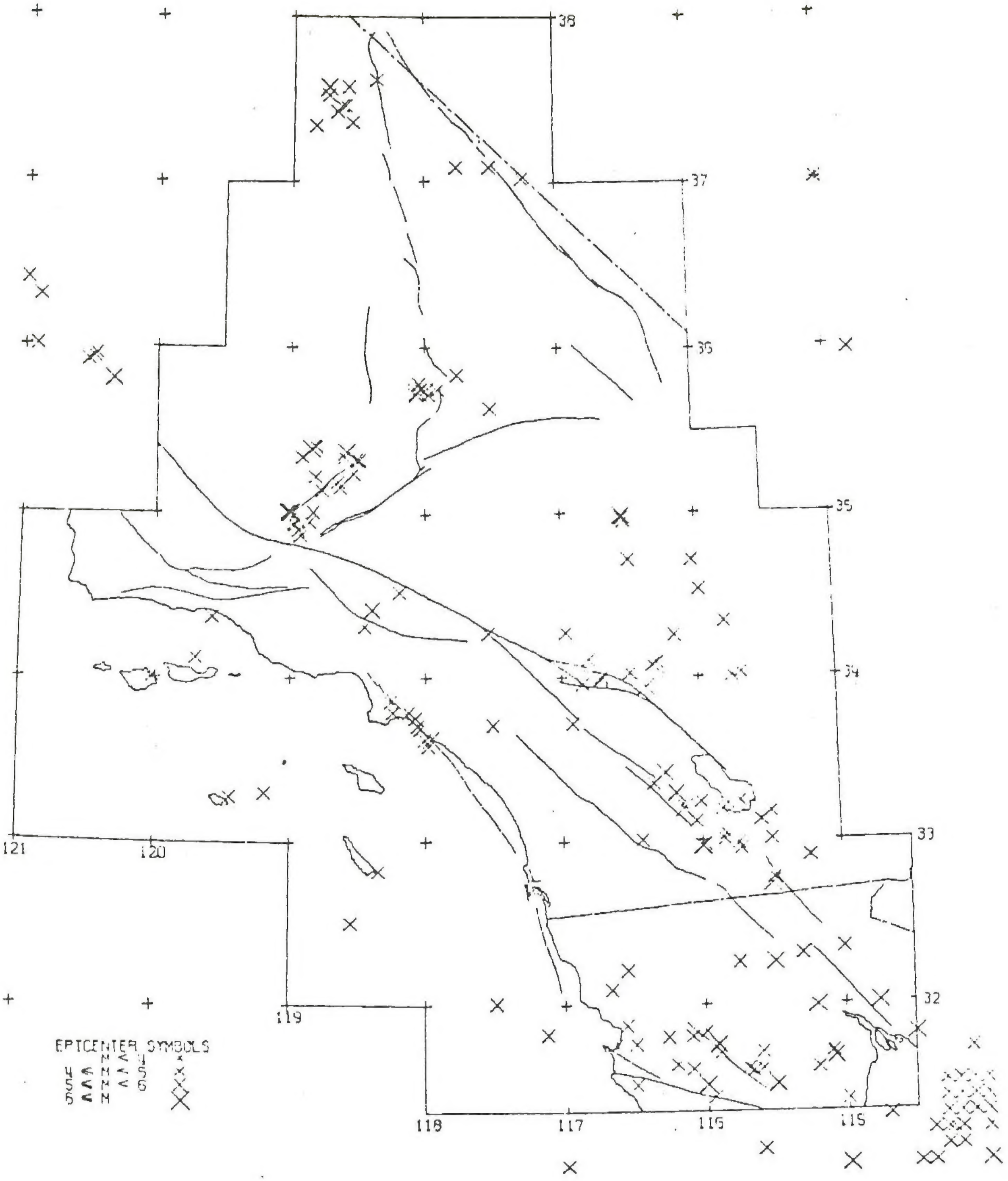
EPICENTER SYMBOLS
M < 4
4 ≤ M < 5
5 ≤ M < 6
6 ≤ M

Fig. 2f



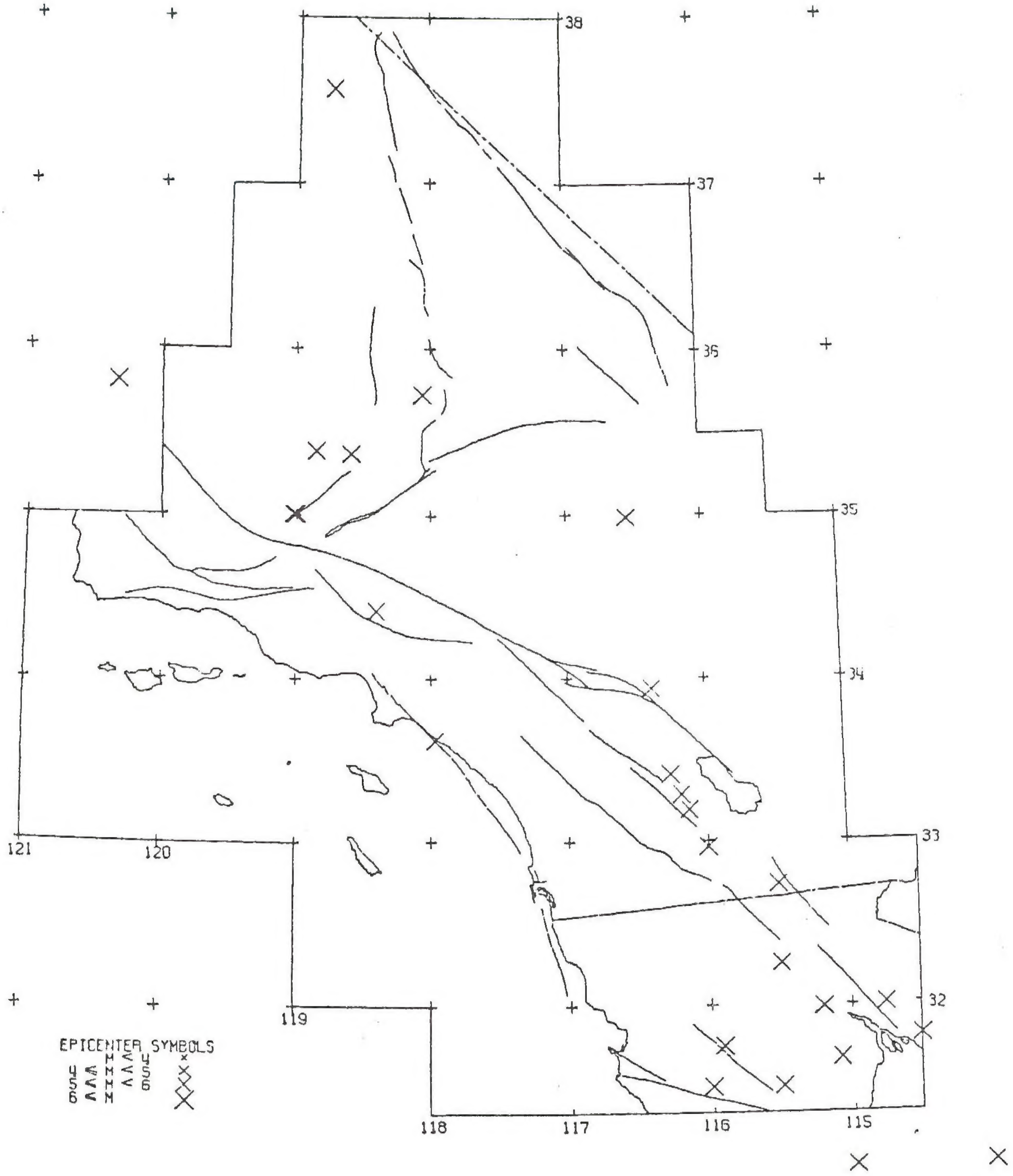
1932 THROUGH 1972. EVENTS EQUAL OR GREATER THAN MAGNITUDE-4

Fig. 2g



1932 THROUGH 1972, EVENTS EQUAL OR GREATER THAN MAGNITUDE-5

Fig. 2h



1932 THROUGH 1972. EVENTS EQUAL OR GREATER THAN MAGNITUDE-6

Fig 2i

2) estimation of the state of the art in identifying active faults. Certainly the suggestion that "trenching," a method in which a trench is dug across a suspected fault and personally observed, be used to identify active faults (DES, III, 201) is difficult to implement in several hundred feet of water. In fact, the present state of the art in identifying active faults, especially under water, is a matter of considerable scientific debate. Nearly every major earthquake in Southern California to date has occurred on a fault that either has not been identified as particularly active or not been identified at all before the event. Clearly, we can do better with increased support and effort, but it is premature to say that we can be near-perfect with our current techniques.

The problem of identification of active faults is important to the hazards of laying linear structures such as pipelines across a possible source of ground distortion. Whereas it requires a sizable earthquake to cause significant shaking damage near the epicenter, much smaller earthquakes can rupture pipeline structures. For example, the magnitude 4.6 aftershock two months after the 1971 San Fernando earthquake ruptured several water mains in the Northridge area of the San Fernando valley. The severe damage done to pipelines by fault motion is due to the fact that, in addition to shearing forces on the pipe caused by fault displacement, either compressional or tensional forces can be added depending on the nature and geometry of the fault motion relative to the direction of the pipe. As stated in the DES (III, 200), "Fault displacements involve forces so great that the only means of limiting damage to man-made structures is to avoid areas along traces of active faulting or to design structures to accommodate the expected displacement." It is a valid question to ask if this can be done in an area of intense and complicated faulting as must exist offshore.

In the marine environment, the damage done by ruptured oil pipelines must be measured by more than the dollar value of the structural damage as is implied by the DES (III, 200). It must also be measured by the amount of oil spill generated by pipeline rupture.

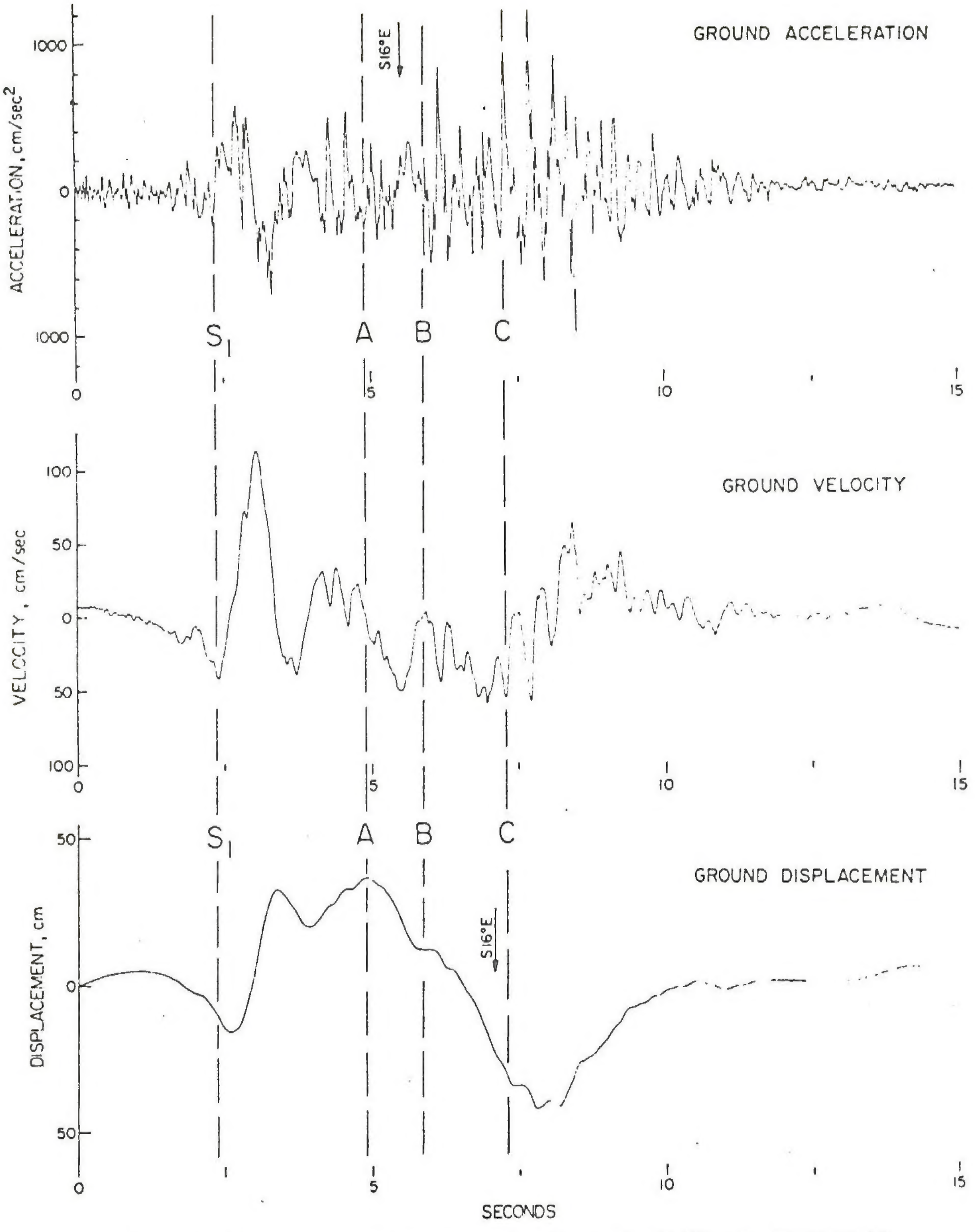
Other problems complicate the use of pipelines. Pipeline leaks are sometimes hard to detect and according to the DES (II, 17), "During OCS operations, more oil has been spilled from pipeline accidents than from all other sources combined." In addition, burial beneath the ocean bottom increases the chances of pipe rupture from fault movement as compared to a pipe that is simply lying on the bottom so that more of the pipe can "give" with the bottom distortion. But this is in direct conflict with the regulation that pipelines in shallow water be buried so that ship anchors cannot hook and rupture them (DES, II, 17).

An earthquake hazard that has not been discussed in the DES is the effect of local earthquakes on the water environment surrounding drilling platforms and pipelines. Tsunamis, or water-surface gravity waves generated by earthquakes, have been mentioned but generally pose little hazard to structures standing in water over about 200 feet deep. However, if the structure happens to be standing on a part of the ocean bottom that experiences significant permanent displacement during an earthquake, two major effects can happen depending on the amount of the ocean bottom's horizontal or vertical displacement. In the case of significant horizontal displacement (strictly, the important direction is the component parallel to the ocean bottom), the drilling platform or pipeline structure will move laterally with the ocean bottom but the surrounding water will remain in place. The net effect is a sudden horizontal ocean current that is uniform from the ocean surface to the bottom. What is the approximate velocity and duration of this current for a typical large earthquake? This question is not easy to answer precisely, but estimates can be made from our knowledge of the processes occurring during the 1971 San Fernando earthquake. Figure 3 shows, with an actual measured horizontal ground velocity at Pacoima Dam, that a peak velocity of 2 knots (100 cm/sec) occurred, with a velocity of more than 1 knot lasting for one second. Pacoima Dam was not in the area of maximum horizontal displacement, which was of the order of 3 feet. But if the same time history of displacement is assumed, a peak velocity of 6 knots is obtained. In the case of a production platform, this current would be acting over the whole submerged structure. While the response of drilling platforms and exposed pipelines to disruptive ocean currents of this type is beyond the scope of this review, it is entirely possible that major damage could be done to drilling platforms, pipelines, and the vertical pipe and casing of the producing well with the associated environmental hazards of oil spill, not to mention hazards to platform personnel.

The second major effect is associated with the permanent vertical displacement. It has been established by leveling surveys that a large part of the San Gabriel mountains was uplifted by 6 feet in the San Fernando earthquake. If this uplift were to occur instead under the shallow south underwater slope of Santa Rosa Island, an immediate southward flow of water would occur as the ocean seeks a level surface again. Calculation of the velocity of this flow, which would have the same characteristics and effects as the current discussed above, is dependent on the water depth and the areal extent of the uplift and again is beyond the scope of this review. However, it could be substantial and the tectonic history of the north channel islands is clearly that of tectonic uplift. Thus, offshore earthquakes of magnitude 6.0 and above can create special hazards that are unique to offshore structures resting on the ocean bottom.

The possibility of a major earthquake occurring in a developed offshore oil field creates the possibility of an oil spillage from so many sources that

Figure 3. Ground acceleration, velocity, and displacement measured at the Pacoima Dam during the 1971 San Fernando earthquake (from Hanks, 1972).



S16°E motion, Pacoima Dam—San Fernando, California, Earthquake
February 9, 1971, 6:00 P.S.T.

Fig. 3

existing or contemplated techniques and organizations could not cope with the repair and clean-up operation in time to prevent significant impact on the environment. This "catastrophic mode" possibility would affect the DES classification of tracts for high hazard potential because the classification was done with the assumption that with a 12-hour lead time the oil spill can be contained and cleaned up (DES, II, 344).

It is difficult to estimate the significance of earthquake hazards for oil spills relative to spills of other causes, especially accidental. Certainly, it appears that fault displacement poses a special hazard to pipelines;but it is estimated that within 20 years, pipeline breaks will average 3 per year from other causes. The potential for a catastrophic spill from several offshore sources at once after a major earthquake,as outlined above, clearly deserves more attention in terms of structural integrity and stability of structures when subjected to large, sudden water currents.

Finally, the potential oil spills from the activity outlined in this document must be analyzed against the backdrop of other oil-related activity in the area, either ongoing or planned. From an earthquake standpoint, drilling and production activity is now ongoing in probably the most hazardous offshore area, the Santa Barbara Channel. The current high level of normal ship and tanker operations in the Southern California area will be dramatically increased with a parallel increase in oil spill potential if the "super tanker" facilities are constructed in the Los Angeles area for Alaskan oil. Oil spills can never be reduced to zero because of the numerous natural seeps in the area, as is frequently mentioned in the DES, although the DES does not make clear the long-term average spill rates of seeps and their significance versus man-caused sources. Clearly, an oil spill "budget" including estimates for all of these sources will have to be made,and environmentally acceptable but reasonable limits will have to be imposed.

REFERENCES

Hanks, T. C., A Contribution to the Determination and Interpretation of Seismic Source Parameters, Ph.D. Thesis, Calif. Inst. of Tech., 184 p., 1972.

Hileman, J. A., C. R. Allen, J. M. Nordquist, Seismicity of the Southern California region, 1 January 1932 to 31 December 1972, Seismological Laboratory, California Institute of Technology, Pasadena, 487 p., 1973.

Jennings, W., State of California preliminary fault and geologic map, California Div. of Mines and Geology, Preliminary Report 13, 1973.

Richter, C. F., Elementary Seismology, W. H. Freeman and Co., San Francisco, 768 p., 1958.

IV MARINE BIOLOGY

ANALYSIS OF ZOOLOGICAL PORTIONS
(Invertebrates and Vertebrates)
of Draft Environmental Statement
(DES) No. 75-8 for OCS Sale No. 35

by

Malcolm S. Gordon, Professor of Biology and Director,
Institute of Evolutionary and Environmental Biology
University of California, Los Angeles

Analysis of Zoological Portions (Invertebrates and Vertebrates) of Draft Environmental Statement (DES) No. 75-8 for OCS Sale No. 35: "Proposed 1975 Outer Continental Shelf Oil and Gas General Lease Sale Offshore Southern California"

by

Malcolm S. Gordon

Professor of Biology and Director, Institute of Evolutionary and Environmental Biology, University of California, Los Angeles

This analysis of the subject DES is based upon careful readings of the following sections of the DES:

Volume 1: II E, Biological Oceanography; II F, Important Marine Associated Habitats; II G, subsections 3d (Sport Fisheries), 5f (Shellfish), 5h (Mariculture), and 5j (County by County Summary).

Volume 2: III B, Impact on the Living Component of the Environment: an Introduction; III C, Impact on Biota of the Open Bight Region; III D, Impact on the Biological Communities of the Coastal Zone; III E, Impact on Commercial Fisheries; III I, subsections 5 (Sport Fishing and Recreation Boating), 6 (Impact on Endangered or Threatened Wildlife), and 7 (Unique Biological Environments); V A, Effect on Marine Organisms; V B, Wetlands and Beaches; V E, Interference with Commercial Fishing Operations; VII C: Fish and Wildlife Resources.

Volume 3: Appendices numbers 10E (Biological Oceanography), 10F (Important Marine Associated Habitats), and 18 (Effects of Oil on Marine Ecosystems).

General Comments

The DES is in many ways an impressive, informative and useful document. However, the sections reviewed here fall substantially short of the goal of constituting a satisfactorily complete and accurate Environmental Impact Statement. The shortfalls of greatest significance are of two kinds: 1) inadequate and/or incomplete discussions of important subject areas; and 2) omissions of any discussion at all of important subject areas. Less significant, but fairly numerous, are various errors of fact, or omissions of relevant details. Still less significant, but very numerous, are signs of haste in the preparation of the DES: typographical errors, grammatical or word usage errors, and inconsistencies in organizational patterns.

My overall conclusion is that the DES as now written is inadequate in a sufficient variety of sufficiently important ways that I would consider the Bureau of Land Management (BLM) to be derelict in its responsibility to protect the public interest if it were to try to proceed with the proposed lease sale on its basis. Virtually all of the important deficiencies in the DES cannot be compensated for on the basis of presently available scientific information. A substantial program of focussed research in many areas of the life sciences, extending over a period of at least three years, will be required in order to accumulate data adequate to reduce to reasonable size just the major gaps in our understanding of the Southern California OCS region likely to be affected by the proposed development program. On this basis I strongly urge postponement of the lease sale, with concurrent support of suitable research efforts.

I am confident that, following three years of suitably designed research, a more fully adequate DES could be written. On the basis of that DES a far better safeguarded program of oil and gas exploration and development could be undertaken. I must point out, however, that BLM's present plans for baseline research in the OCS are also seriously inadequate.

Inadequate or Incomplete Disucssions in the DES

The DES in various places (e.g. sections II E 2-6, III B, III C, III D 6, Appendix 18) points out the high probability that the biological effects of long term, low level, chronic exposures of marine organisms to petroleum hydrocarbons (PHC s) of various types, also to heavy metals, will turn out to be substantially greater and more deleterious than will the biological effects of large scale, short term events such as well blowouts, pipeline ruptures, or tanker collisions. I agree strongly with this position. The DES falls short, however, in its discussions of what the possible impacts of such chronic exposures might be, also what types of additional studies would be needed to permit informed assessment of these impacts.

An important inadequacy in this context relates to chronic exposures of living organisms to elevated concentrations of heavy metals. Section III D 6, pp. 170-171 of Volume 2, states that there is good evidence that the combined actions of sea water and various microorganisms, in the presence of low levels of pollution by organic matter (such as PHC s), lead to significantly higher rates of corrosion of metallic objects (such as drilling platform supports, pipelines, etc.) than occurs in organically unpolluted sea water. The discussion of these comments is restricted to the probable need to replace worn out metal items more frequently. There is no consideration of this corrosion as a possible significant source of heavy metals going into solution, in addition to the heavy metals likely to be added both from drilling muds and drilling tailings (see Section III B, Volume 2, p. 63). There is no consideration of possible biological impacts of this corrosion.

Related inadequacies are found in Sections III E and III I 5. The biological portions of Section III E on impacts on commercial fisheries considers only possible effects of oil pollution on fisheries yields. There is no discussion of possible effects on these yields of heavy metal pollution, or of possible condemnations of fish catches due to legally unacceptable levels of heavy metals in the tissues of predatory fishes. The same comments apply to the discussion of sport fisheries in Section III I 5.

Still another related inadequacy is found in Section III D 4. The discussion in this section relates to possible effects on marine mammal (primarily pinniped) populations of the Channel Islands of direct exposures of these animals to oil. There is no discussion of possible effects of heavy metal pollution, particularly in the context of contamination by, and biological magnification of tissue concentrations of, heavy metals in the food organisms eaten by these animals. This concern appears to be particularly relevant for the lease areas near Santa Catalina, Santa Barbara and San Miguel Islands.

Numerous brief references are made at various points in the DES (see especially pp. 75 and 85 of Section III C, Section III D 6, and Appendix 18) to the dearth of available scientific research on the effects of low level, chronic exposures of marine animals anywhere to PHC s and heavy metals. With the exception of limited amounts of very recent work, much still in progress, carried out by the Southern California Coastal Water Research Project (SCCWRP), there is virtually no information on these subjects with respect to organisms occurring in the Southern California OCS. Nowhere in the DES is there a discussion of what types of laboratory and field studies would be necessary to provide reasonable amounts of information in these areas within reasonable periods of time, or of possible mitigating measures that could assist in reducing these impacts.

A number of other significant inadequacies exist with respect to additional zoological topics. These include:

The Biological Oceanography sections of Volume 1 (Section II E and its subsections) are uniformly broad scale, historically based, synoptic descriptions of the most abundant kinds of animals, their main habitats, their distributions, and their numbers. Only a fraction of this material relates directly to the potential OCS lease areas. There is also very little discussion (in many subsections no discussion) of changes in these features with time--either seasonally or over periods of years. There are no discussions of temporal trends on a finer scaled, subregional areal basis. These descriptive sections are, therefore, inadequate in these respects.

Some of these sections are also incomplete. For example, Section II E 4 presents detailed data on benthic fish abundances and distributions based upon recent SCCWRP trawling surveys. The DES recognizes the fact that these surveys have been restricted to relatively near shore, relatively shallow depth, relatively smooth bottom areas. As a result, the DES presents no information on fish populations in further offshore, deeper water, or rough bottom regions.

These sections are further inadequate in that there are only fragmentary discussions in a few places of the dynamics of the animal species considered. Under the term dynamics I include such features as food web relationships (which species eat which other species, when, where, and how often), population dynamics, species responses to variations in the oceanic climate, reproductive seasons and capacities, competitive interactions with other species, etc. Understanding of the dynamics of at least the major animal populations and associations present in the region is essential if adequately informed scenarios are to be developed concerning the possible effects on the living populations of the OCS of events of the kinds likely to be associated with oil and gas development.

Much of the limited information presented on these topics relates to nektonic animals, primarily fishes (Section II E 4). Table II-55 lists all fish families known to occur in Southern California waters, and gives sketchy general statements concerning their habitats and, for many families, their major types of foods. The food data are seriously inadequate and incomplete. Out of a total of 150 families listed, 40 have no food information given at all. Some of these blanks relate to some of the best studied, most important (in terms of fisheries and position in marine food webs) fish families--including the salmons and their relations (Salmonidae), the smelts (Osmeridae) and the halfbeaks (Hemiramphidae). These gaps are indications of a lack of expertise on the part of the preparers of this Table.

Other inadequate sections, due primarily to incompleteness of the discussions presented, are Sections II G 5f on shell fish resources and II G 5h on mariculture. These two sections may be compared with Section II G 3d, on sport fisheries. The sport fishery discussion is a careful and thorough one.

Omissions from the DES

There are also a number of important omissions from the DES. A major omission (from Sections III B and III C) relates to possible impacts on the faunas of the deeper water regions of the Southern California OCS. Comments in these sections are restricted to either shallow water or shore faunas. Since the DES explicitly states (Section VIII A 2, Vol. 2, pp. 442-443) that the technology is now available for drilling in water depths greater than 1000 feet, and that this technology will almost certainly be used off Southern California, there is need for such a discussion.

The faunas of the mesopelagic, benthopelagic, and deep water benthic regions of the Southern California OCS are highly varied, form important parts of the oceanic food web (especially, in terms of relationships to shallow water fishery resources, the vertically migratory "deep scattering layer" mesopelagic associations), and are adapted for life in some of the least polluted water masses in the oceans. Even low level, chronic exposures to PHC s or heavy metals in this environment are likely to have drastic effects on viability, growth, mobility, reproduction capacity, capacity to compete with other species, etc. of many of the most abundant animals in these faunas.

The fact that oil floats does not mean that these faunas will not be significantly exposed to PHC s from deep water leakages. The DES repeatedly points out that many of the lower molecular weight, more volatile, for some compounds more carcinogenic, components of crude oil are significantly soluble in sea water. Oil leaking into sea water also tends to emulsify to considerable degrees, and microscopic emulsified droplets will be widely spread throughout the water column as larger droplets float upward.

An important possible source of heavy metals in these deep water regions could be the bacterially facilitated metal corrosion mentioned earlier (pp. 170-171, Volume 2 of the DES). This would be in addition to heavy metals deriving from drilling muds and tailings spread on the deep sea floor around wellheads.

A second group of significant omissions is in the area of possible second order effects of environmental impacts of the OCS development program. There are several sections in which such discussions are needed (including Sections III B, III C, III D, and III E, Volume 2). I will discuss here, as an illustration, what I consider to be the most serious of these omissions.

Section III C 3, Volume 2, states that a possible, perhaps quite probable, effect of the OCS program could be the total elimination from the region of the large breeding colonies of pinniped marine mammals on the Channel Islands. There is no discussion of possible implications of such a disastrous development.

I can visualize at least two major, second order implications. First, a substantial, highly vocal, politically potent public outcry against the OCS program on this ground alone. There is a very high level of public interest in and concern for the welfare of marine mammals in the Southern California human population. Second, a possibly highly significant, probably deleterious, effect on the regional populations of many species of bony fishes and shellfish and crustaceans important in both sport and commercial fisheries.

The marine mammals involved form one of the largest groups of predators now feeding upon the regional populations of the other organisms mentioned. Removal of these predators would probably have, as a short term result, explosions in the prey populations. These might be temporarily advantageous to fishermen, but would be likely to be soon followed by serious declines in both size and quality of the fisheries animals. Predators perform ecologically essential roles in removing sick and otherwise debilitated animals from living populations. They also are often essential in ensuring that prey population sizes do not exceed the support capacities for the environment of the prey. Predator removal frequently results in both serious overpopulation of prey organisms, with resultant stunting of growth due to inadequate food supplies, and to significant increases in the occurrence of diseased, deformed, or otherwise unhealthy prey organisms. Significant reductions in the populations of predatory marine mammals (such as sea lions and fur seals) could, thus, have far reaching damaging effects.

Finally, another significant omission from the DES relates to the commercial fisheries of Southern California. Section II G 3d, Volume 1, is a good, current description of the past and present status of Southern California sport fisheries. This section includes some data on commercial fisheries as well. However, there is no separate, specific discussion of commercial fisheries (worth many millions of dollars per year) comparable to that for sport fisheries.

IV MARINE BIOLOGY

CRITIQUE OF THE DRAFT E.I.S. FOR SOUTHERN CALIFORNIA O.C.S. LEASING AS IT RELATES TO IMPACT UPON MARINE LIFE

by

Dr. J. T. Enright, Professor
Scripps Institute of Oceanography

I

MASSIVE OIL SPILLS

The only information presented which is directly relevant to the question of the effects of massive spills on plankton is the statement that Oguri and Kantor (1971) found "no conclusive evidence" of an effect of the Santa Barbara spill on phytoplankton community productivity "directly attributable to the oil spill". Such a stringently and carefully qualified negative conclusion, based on a single study, should not, however, be interpreted to mean that a massive spill will be harmless to the plankton.

On the basis of less direct evidence, derived from controlled experiments, it has been concluded that oil in concentrations as low as .001 ppm (parts per million) may inhibit algal cell divisions, and that 50-100 ppm will inhibit photosynthesis (p. 68). Evidence cited in another section of the Draft Statement indicates a possible discrepancy in this latter figure. Based on the same reference (Gordon and Proust, 1972, which is not available to me), a direct quotation is given which indicates that photosynthesis is inhibited by crude oil concentrations of 50 to 100 ug/l, or .05 to 0.1 ppm (p. 113). One or the other of these citations is wrong by a matter of one thousandfold. Other laboratory evidence shows that zooplankton may be sensitive to concentrations as low as 1 ppm (p. 73); and that behavioral and reproductive functioning of marine fish and crustaceans may be disrupted by concentrations of certain constituents of crude oil at levels of 0.01 to 0.1 ppm (p. 85).

There is, then, every reason to presume that a massive spill will have negative effects on both zooplankton and phytoplankton in any area upon which a massive spill impinges, but no reliable basis for assessing how negative the effects will be, nor how long such effects will persist after the spill has dissipated as a visible entity in the form of surface slicks. The estimates of volume and frequency of massive spills represent educated guesses, based upon the assumption of reasonably "good luck". I am not qualified to offer an opinion about how reliable these estimates are. For the impact of such a spill on the plankton, however, not even an educated guess is possible, since there is no adequate foundation of data from which the "education" might follow. One cannot, of course, conclude that 10^5 bbl of oil would produce a concentration of 1 ppm in 10^{11} bbl of seawater; but when one looks for an alternative interpretation, there seem to be no data available on the expected areal, volume or temporal extent of any particular concentration of oil or its constituents in seawater due to a massive spill.

From this wellspring of admitted ignorance and uncertainty, the optimistic conclusion is drawn (p. 75), "The literature indicates that the plankton population of the Southern California ecosystem will probably be able to absorb the impact of a major spill and recover fairly rapidly". The sole supporting evidence from which this optimism derives seems to be the statement on page 74 (which is not attributed to any other source), "However, based on the high reproductive potential and numbers of larvae released by these animals, distributional and survival powers [sic] will not be significantly affected although there might be a locally adverse effect". This is not, I believe, a conclusion derived from the literature, but only a pious hope. It may be so, or it may not be so, but evidence in either direction is lacking.

II

MINOR SPILLS

The Draft Statement is disarmingly frank in admitting that there has been virtually no prior careful study of the effects of low-level continuous spillage of oil in offshore water. Regular natural seepage in the California borderland is estimated at 100 bbl per day; I can see no justification, however, for accepting the following inference: "The fact that the area [where the seepage occurs] is highly productive may indicate no long term effect on the plankton." The extent to which productivity of plankton might be greater and the environment healthier in the absence of this seepage is totally unknown.

Two series of quotations about the effects of minor spills and prolonged chronic discharge of oil, based on "cautious speculation", are offered in the Draft Statement. First, a "pessimistic view" (p. 70) ". . . we are rather ignorant of long-term effects", followed by a consideration of several suspected negative consequences which cannot at present be proven, disproven or quantified; then, a "less pessimistic view" (p. 71): "Chronic pollution from offshore production sites represents an unknown factor," followed by the optimistic suspicion that the "immensity of the water column" may dilute expected negative effects, provided there is no cumulation of toxic substances--which latter possibility is also stated to be an "unknown factor."

In this critical problem area, therefore, the conclusion drawn (p. 75) seems to me to be entirely appropriate: the impacts of sublethal [and, I would add, even lethal] effects, as well as carcinogenic and food-chain-uptake effects of chronic discharge are recognized as "potentially dangerous", but how dangerous, either to the total marine ecosystem, or to man (through fisheries activities) ". . . is still in the unknown category". With this depth of admitted ignorance, is it possible to make an informed decision about environmental consequences of the proposed lease?

III

FORMATION WATER

In my opinion, the two most critical failings of this section of the Draft Statement are that it does not even consider formation water as an important source of contamination by oil and other petroleum products; and that no consideration is given to the long-range fate of formation water. A quotation from the MIT Offshore Oil Task Group (1973) is offered on p. 6, ". . . biologically this low-concentration, persistent source [i.e., formation water] could be the most significant of all minor discharges", and this statement is nowhere subsequently refuted. Nevertheless, the treatment of formation water on p. 72 essentially ignores the fact that it will be an important source of contamination of the oceans by oil, passing over the issue with the statement that the water ". . . has all but traces of entrained oil removed". In fact, "OCS operating orders require that the average oil content at the point of discharge must not average more than 50 ppm" (p. 6), but 50 ppm, multiplied by the volume of formation water to be discharged, indicates a continuing discharge into the ocean of upward of 100 bbl of oil per day (p. 87). That calculation assumes a 40-year life for the project; should improved technology accelerate the rate of daily production of oil, leading to a shorter total production interval, the daily amount of oil in formation water might well be even greater. Even at 100 bbl per day, that amount of oil in formation water might well be even greater. Even at 100 bbl per day, that amount of oil is greater by a factor of about 4 than the expected total of all small spills and other chronic discharges, and greater by a factor of 3 than the (averaged) annual oil input expected from massive spills; it is overwhelmingly the largest expected source of oil to be released into the marine ecosystem. Hence, the introductory paragraphs on "Impact on Biota of the Open Bight Region (p. 66), where formation water is not even mentioned, represent a disconcerting misplacement of emphasis: "It must be recognized at the outset that oil spills probably represent the most severe threat to the biota. . ." (p. 66). If estimated volumes of contamination due to spills are realistic, they dwindle to relative insignificance, in terms of probable biological impact, compared with the oil which is to be added to the ecosystem in the discharged formation water.

Furthermore, it is my interpretation--perhaps mistaken, but I have found nothing in the Draft Statement to refute that interpretation--that the allowed 50 ppm represents oil and grease, recognizable as such, and may well not include those components of crude oil which are dissolved completely in the brines, such as aromatic hydrocarbons. The MIT Task Group has observed (p. 6) that "there appears to be no data on the fractional composition of the oil remaining in the water after treatment, " but notes that the separation process is ineffective against dissolved constituents. There are two small bits of data presented in the Draft Statement on this subject, contained in Table III-3. It is indicated there that the single sample of water--which, incidentally, seems exceptional in that it contained remarkably little oil and grease (5 ppm, vs. 50 ppm allowable), and remarkably little salt (about 2/3 that which is given in Table III-2 as a "low solids" brine)--also contained 2.1 ppm of phenol (C_6H_5OH). Phenol represents only one of a vast array of readily soluble hydrocarbon constituents of crude oil, and apparently no detailed analysis for other such hydrocarbon constituents was undertaken.

That same Table (III-3) indicates that the water tested contained 1810 ppm "volatile solids". I consider it extremely important to know what those volatile solids were, and what their concentration in more typical formation water might be. The possibility exists, I think, that these represent the host of other soluble constituents of crude oil. If that is so--or even if an appreciable fraction of those volatiles constitute soluble aromatics--their concentration in formation water would be so high as to constitute not only grounds for environmental concern, but a basis for extreme alarm. Perhaps there is a simpler and innocuous alternative explanation for 1,810 ppm "volatile solids", but none has occurred to me. The biological consequences of such a concentration of dissolved aromatics--if that is indeed what they are--can be expected to be catastrophic. The vast majority of such soluble hydrocarbons are biologically harmful, including, of course, phenol: "a caustic poisonous crystalline acidic compound. . . that in dilute solution is used as a disinfectant" (Webster's Collegiate Dictionary). Many such compounds are extremely toxic even in low concentrations, others being carcinogenic. The Draft Statement indicates, for example, that soluble aromatic derivatives of crude oil at concentrations of .01 to 0.1 ppm will disrupt feeding, reproduction and social behavior of fish and lobsters (p. 85); there is no obvious reason to expect plankton to be less sensitive. Phytoplankton cell division can be inhibited by oil concentrations as low as .001 ppm (p. 72) and photosynthesis is inhibited by oil concentrations of .05 to 0.1 ppm (p. lle)--actions which I suspect may also be due primarily to soluble aromatics.

It is my considered opinion, therefore, that our ignorance about the identity and concentrations of these solubles in formation water is an extremely important gap in our knowledge. Why has the 1973 plea for such information by the MIT Task group (p. 6) not been answered by careful accumulation and publication of relevant data?

Another truly critical question which is not addressed in this section of the Draft Statement is the following: what will be the ultimate fate of formation water and its contaminants? On this subject, the Draft Statement seems to me to be extremely naive (p. 72): "It could be anticipated that the release of this water would result in a plume trailing away from the point of discharge in the direction of the current, with a core perhaps a few feet in diameter and tens of feet in length". Regardless of the temperature at which this water is discharged, the expected salt concentration (suggested by Table III-2, although "no valid information exists for mineral salt concentrations from oil field brines in Pacific OCS waters." [p. 3]) is so high that I believe, in the absence of better information, that one must presume such water would sink rapidly; its density would very greatly exceed that of the surface waters. During the sinking process, it would no doubt be diluted by the surrounding waters, but the extent of such dilution and the resulting final density cannot be accurately determined on theoretical grounds. Perhaps these formation waters would sink as a relatively coherent plume, to be layered on the bottom; perhaps, with sufficient turbulence, they might mix extensively with the water column; but to assume that they will disperse as a plume subject primarily to surface currents seems to me to ignore elementary physical principles.

Because of the expected short residence time of very dense formation water at the surface of the ocean, it can be expected to remain essentially anoxic, except for advected oxygen from the dilution with surrounding waters--which nevertheless represents a net loss of oxygen to the system. Without adequate information about the extent of dilution, one cannot determine the salinity of the resulting mix, but the salt will not disappear. The result may, then, be an accumulating layer of essentially anoxic, highly saline brine with an oil content of 50 ppm and an unknown amount of soluble aromatics, on the bottom surrounding the production platforms

(2 million bbl of such water per day), or an accumulation of a much larger volume of more dilute saline water, with a salinity perhaps only moderately greater than that in the general area, a modest depletion in oxygen, and concentrations of oil and soluble aromatics which are less than at the point of discharge, how much less depending upon the dilution factor. The very great density of this brine, even granting extensive dilution, leads me to suspect that it will in fact remain a relatively coherent body of water on the bottom for very long periods of time. As an example of such coherence, the Mediterranean Sea has deep water with a salinity of about 38.5 ppt, and this water flows into the Atlantic on the bottom through the Strait of Gibraltar and remains a coherent, recognizable water-mass layer in the mid-Atlantic at least 1000 miles from the Strait, although it differs from the surface water in salinity by only the ratio of 38.5 ppt to 35 ppt. For comparison, the salt content of formation water given in Table III-2 is expected to perhaps be on the order of 100 ppt to 150 ppt, compared with 33 ppt for the surrounding receiving waters.

As an example of the kind of speculative calculation that can be made, based on major ignorance about the expected fate of formation waters, let us assume a 10:1 dilution of formation water en route to the ocean bottom; and let us assume that this dilute mixture would then flow outward from the sources along the bottom, to produce a layer of, say, one meter thickness. Taking 2.5×10^{10} bbl of formation water as the total produced over the life of the project, or 3×10^{9} cubic meters, leading to 3×10^{10} cubic meters of the 10:1 dilution, the area covered would be 30,000 km^2 or about 10,000 square miles, covered to a depth of one meter. This is, of course, a cumulative calculation over the life of the project; since there is no evident biological or physical mechanism which would remove salt from the system, other than gradual flow of the high-density mixture to greater depths, a cumulative calculation seems appropriate to me.

With the assumed 10:1 dilution, the oxygen deficit might not be an appreciable problem for the biota in and beneath this layer, but the salinity of the mix would be about 20% higher than ordinary seawater--probably an intolerable osmotic stress for many if not most offshore benthic and near-bottom organisms. The oil concentration would be reduced to 5 ppm due to dilution, and the concentrations of soluble aromatics would also be reduced to 10% of their initial level, whatever that may be. The long-term fate of these hydrocarbons, including the extent of their persistence over time, are matters about which I will not even offer a guess, but it should be borne in mind that biologically deleterious concentrations of aromatics can be at least as low as 0.01 ppm (p. 85). It seems likely, therefore, that even a 10:1 dilution of formation water would constitute something other than a biologically optimal environment. Is it conceivable, then, that this proposed lease sale would lead to the sterilization of 10,000 square miles of seafloor? That is admittedly a pessimistic scenario, but I see nothing in the Draft Statement which precludes such a possibility; nor does this sort of pessimistic speculation obviously violate any physical or biological principles.

IV

SUMMARY

In brief summary of these considerations, it appears to me that the information in the Draft Statement is completely inadequate to evaluate the ecological implications of the proposed lease. There is clear reason to recognize that environmental deterioration will be inevitable, but the extent of the deterioration cannot be legitimately assessed.

Major spills can be expected, with a high degree of confidence, to cause decreases in photosynthesis by phytoplankton, and produce death as well as assorted sub-lethal abnormalities in huge populations of zooplankton. Inadequate information is available to determine how long such effects would persist, over how large an area. One can hope that the flora and fauna would recover rapidly, but there is no good empirical basis for assuming that this will occur. The expected dissipation of surface slicks, within 60 days of a massive spill, does not mean that residual negative consequences might not persist much longer in the contaminated waters.

Minor spills and chronic low-level discharge can be expected to have qualitatively similar but continuous negative effects on the planktonic flora and fauna. Concentrations of oil as low as 0.05 ppm have been shown to inhibit algal photo-synthesis, and concentrations as low as 0.01 ppm have affected behavior and reproduction of marine animals. Hence, even low-level discharges may have persistent adverse consequences, but the real extent and magnitude of these consequences cannot be quantitatively assessed. The Draft Statement is accurate in concluding that such effects are "unknown", potentially dangerous" and possibly "the most severe effects of oil production in the marine environment".

The discussion of formation water in the Draft Statement in terms of biological and environmental consequences is both superficial and grossly oversimplified. At a permissible level of 50 ppm oil residue in the water at the point of discharge, this source will apparently represent the overwhelmingly dominant source of environmental contamination by oil--not in a form in which it will be a visible nuisance, but as a hidden, diffuse and probably lethal source, the consequences of which will be felt by the surrounding ecosystem. The first important gap in our understanding of this problem is that the nature and concentrations of the various petroleum derivatives in formation water at the time of discharge are apparently unknown. Since the separation process is ineffective against soluble constituents, the water will contain unknown but probably deleterious concentrations of a huge array of soluble constituents, particular aromatics, the action of which may be expected to be adverse upon the biota even in very low concentrations. The magnitude of this problem cannot be assessed, but it is potentially acute.

The second important unknown with regard to formation water is the nature of its ultimate fate in the ecosystem. The expectation of high salt concentrations means that this water can be expected to sink through the water column, be subject to some unknown dilution factor en route, and thereafter form a dense layer on the seafloor, which will disperse due to gravity flow. The depth, areal extent, persistence and biological unfavorableness of this layer cannot be accurately predicted; the Draft Statement does not even consider this problem so far as I have been able to determine.

V MARINE BOTONY

REPORT ON DRAFT ENVIRONMENTAL STATEMENT
DES-75-8 - OCS Sale No. 35

Bureau of Land Management

by

David J. Chapman, Associate Professor Biology
University of California, Los Angeles

I

SCIENTIFIC ACCURACY

The strictly descriptive aspects (Vol. 1 and appendix Vol. 3) pertaining to the phytoplankton and attached vegetation are essentially correct. The descriptions are basically condensates of the available literature of this century, but with no critical evaluation. Even then some errors have crept in. Euglenoids and Chlorophyta (1, 99) are not principal constituents of marine phytoplankton. Cryptomonad phytoplankton, which are unmentioned are probably equally important as the above two groups. This DES should point out that these descriptions are only qualitative. There is no distinction as to relative importance of various groups of organisms, and significantly no quantification of contribution to the food chain. This information is probably not available except in rudimentary form. This is information that is sorely needed before any impacts are felt. I would also have expected the discussion to have mentioned the end effects (eg. anoxia, fish kills) of phytoplankton blooms.

The description of the benthos is also essentially correct. The implication (1, 144) that the impending "Marine Algae of California" will provide, or meet, baseline requirements for environmental studies is erroneous. Floristic studies are qualitative and cover only selected sites. They do not cover the entire area and are not quantitative except in the broad sense of "abundant, sparse, common, rare" etc.

What we need - unquestionably so - is a quantitative baseline for the entire area for all algae and maritime vegetation for all seasons.

This information will take time to assemble; two to three years. Without it, it will be impossible to monitor changes and impacts, except in a qualitative sense. This discussion is superficial, since the important data is the quantitative information. A major deficiency of this DES is the failure to distinguish between the qualitative and quantitative and to emphasize the latter. Much of the quantitative data that are available are concerned with very localized, specific instances, e.g., sewage out-falls. Equally important are the type of quantitative data. Species numbers, phytoplankton volume are important indicators, but this report should have mentioned productivity. This is the key quantitative datum and the one most lacking. In a review of DES 74-90 the lack of, and need for, quantitative baseline data was discussed. I must emphasize very emphatically, the need for this information, before any potential impacts are felt. We cannot satisfactorily monitor impacts without this data. We are dealing now with much larger areas; 1.5×10^6 acres and offshore areas up to 750 metres depth.

The physiological descriptions, such as they are, are adequate. However, this report is weak in that all available information, appropriate to this problem should have been considered, but only that information immediately applicable is emphasized. Since much of this DES is abstracted from reports and summaries, it is doubtful if this has been done. Such gathering and consideration of information takes time, but site-specific DES of this type should be thorough and complete not cursory surveys, abstracted from other summaries and surveys. While considerations of what has occurred are important it is equally significant to consider maximal and minimal changes and effects that might occur. Obviously much of this can't be done, simply because there is a paucity of information. In some areas however some discussion of projections should have been included e.g., what changes and increases in sewage effluents are likely to occur in the lease area in the next 20 - 25 years. These changes will affect the environment, and will interact with impacts resulting from the proposed lease. There should have been mention of possible interactions between OCS lease impacts and thermal waters from potential nuclear power stations. If a lack of data prevents adequate discussion, the DES should have said so and pointed this out as an area for immediate work. This DES is deficient in considering such interactions with non-OCS lease effects over the next 25 years, and adds to the inadequacy of this DES. In the marine environment one cannot compartmentalize environmental impacts of OCS-lease and non-OCS lease situations.

The red tide problem is a major concern in Southern California. The discussion (1, 122) on causative agents is superficial. The statement "we do not have evidence to indicate that an occurrence will be caused as a result of the proposed sale and subsequent operation" is a cop out. The appropriate statement is that we do not know what will happen because we know very little about red tide causes. These obviously are a complex interaction between a number of factors such as migrations, steep, shallow thermoclines, nitrates, upwelling. The statement "we do not have evidence" may well be misinterpreted to read "work to date indicates that we do not . . ." These two statements have different meanings and this DES routinely fails to distinguish between "lack of evidence due to failure to perform the appropriate experiments" and "lack of evidence due to the accumulation of negative results from appropriately performed experiments." Nearly all of the deficiencies in knowledge fall into the former category. In view of the potential impacts of red tides, this DES is deficient in not emphasizing our lack of knowledge of this phenomenon and the urgent need for information before OCS - derived impacts can occur.

Vol. 1, page 11 indicates seawater iron up to 50ng/litre. Vol. 2, page 72 indicates formation waters up to 1000-2000ng/litre (1-2mgm/L) iron. The Table (2, 5) indicates Louisiana brines can have up to 150mgm/L iron. There is obvious potential for sharply increased, if some localized, iron concentration. If we do not know what is in Pacific OCS brine (2, 3) and if we do not know the cause or trigger of California red tides, but if iron has been implicated in red tides elsewhere the statements (2, 73) are inappropriate. This somewhat sloppy and cavalier treatment of red tides represents a further inadequacy of this DES.

The statement (1, 148) that kelp and other algae washed ashore are part of sandy beach vegetation is ridiculous. This is wrack and not part of the natural vegetation.

The actual values of productivity on the intertidal can be accepted, (1, 153) provided the difficulties of measurements, generalizations and sources of error are realized. These results apply to sewage outfalls, and are not necessarily applicable to oil pollution. Sewage pollution, by and large, involves metabolic, or metabolisable, substrates, e.g., inorganic and organic phosphorus and nitrogen compounds. What are needed, and are not mentioned, are studies yielding data on oil effects on productivity, with and without combination of sewage effluent. In considering this productivity data the DES fails to mention that Littler and Murray (Mar. Biol. 27: 131) commented, "There is considerable risk in extrapolating short term productivity rates to daily rates or yearly rates." I do not believe this is a deliberate omission but rather the result of relying upon other reports and surveys. A further inadequacy (also see later) of this DES is the apparent failure to consult, or consider, the original publications. Such an omission may well result in an expression of only half the story or the incorporation, even if unintentional, of an additional bias.

The descriptive aspects relating to marshes, bays and estuaries are good. The physiological description pertaining to zonation (page 1, 392ff) is not so good. Rarely is zonation so simply dependent upon CO_2 limitation andwater logged soils as implied. They may be significant contributing factors. What is more important, and which should have been emphasized is the fragile nature of these environments, and the great susceptibility to damage if the vegetation is damaged,

The discussion on kelp beds (1, 440) and mariculture (1, 663) are adequate. I would have expected a consideration of the impact of oil pollution on any future mariculture operations. It is quite within the realm of possibility that there will be expanded kelp beds and extensive mariculture operations within the next 20 years. What would be the effect of pollution on these operations. Aside from the scientific impact there is also the commercial impact. Even in the absence of hard facts or projections these problems should have been raised. An impact statement should concern itself with the future, and not just with the future trends of the currently existing status, but also with major new developments such as mariculture, increased kelp bed development, increased sewage outfall and potential thermal waters from nuclear power plant cooling. As these increase and develop, the chance of a deleterious impact increases, with increased potential for environmental and commercial damage.

II

DEFICIENCIES IN KNOWLEDGE

Considerable data are given on total oil spills (numbers, barrels, etc.). These are important data, but I do feel that data should have been readily available that would indicate spillage (bbls.)per oil well and distance separating oil wells and number of wells per area. To emphasize this point there are now in Southern California 170 wells producing 1.9×10^6 bbls. annually. It is projected that the OCS lease could result in 650-4975 wells producing 360×10^6 bbls. annually. This is more than an order of magnitude increase, with at least a potential order of magnitude increase in chance of spills or total spillage. In reviewing this DES, I sometimes get the impression that these considerations have been omitted, or buried in the statement in order to make their recovery difficult.

The statements with regard to the Santa Barbara oil spill are very illuminating, and highlight the problem of monitoring fixed well spillage. Estimates on the spillage (2, 10, 20) vary from 18,500 to 750,000 bbls. There is a world of differnce between these two values. By the criteria on page 57 the geological survey estimate (18500 bbls.) indicates this is not a major spill. The high estimate would indicate that this is a very major spill.

It can be argued quite strongly then, that the Santa Barbara was not a major spill and that it represents an inappropriate model or baseline for major spills. This confusion casts a wholly different light on this DES, and it is a deficiency of this DES that this problem has not been fully discussed with regard to using the Santa Barbara spill as a model. While on this subject, mention should also be made of the time factor for a spill to reach shore. Estimates for Santa Barbara varied between 1-6 days. All other factors being equal, an oil spill reaching shore in 1 day will cause more damage than the identical spill reaching shore in 6 days. In using data from past spills in impact projections for future spills, one cannot use only total volume as the significant factor for shoreline impacts. There must also be a consideration of the time to reach shore, weather conditions and season. The failure to take full cognizance of this is a further deficiency of this DES.

Admittedly OCS accident frequency may be decreasing since 1968, but frequency is only half the story. Barrels per spills, spills (bbls.) per area, are also of equal concern. Interestingly enough the Table 111-4 shows a marked increase from 1971-1972 in frequency and volume spilt in onshore pipeline facilities, which offsets any reduction in OCS spillage. It is very easy to play the numbers game to suit a particular viewpoint. I detect in this DES a tendency to consider the problems only at the minimal end of the spectrum. This is an impact statement and thus must also consider the problem from the maximal end of the spectrum. The least that can happen, and the most, should be thoroughly aired and discussed, however unpalatable. The failure to do this is a serious shortcoming of this statement.

The problem of oil in the food chain is a very serious one, and has not received satisfactory consideration. On Page 69 (2) there is a minimal discussion. "Oil" in toto, entering the food chain is not the significant feature. The concern must be for individual compounds. Only one harmful compound (e.g., Carcinogen) needs to enter the food chain, with all the rest being voided, and the damage is done. The failure of this DES to consider the food chain from this viewpoint, and the failure to emphasize our woeful lack of knowledge of a very important feature, represents a further inadequacy of this DES.

To describe (2, 70) Blumer's statement "we are rather ignorant of long term effects" as a "pessimistic view" is very inappropriate. It is simply a statement of a rather obvious fact, and represents a situation that must be clarified before drilling. Blumer's contention that hydrocarbons are taken up into the food chain is in contrast to the DES statement on page 69.

The discussion on brine water effects is inadequate, and again emphasizes our ignorance in this area and exposes the all too familiar, but erroneous idea that the Gulf of Mexico operations are applicable to Southern California. The contents (1, Table 3)and anoxia of brine waters are potentially harmful. These may well produce a minimal effect in Galveston Bay. But Galveston Bay is not offshore Southern California, biologically or environmentally. What about the potential maximal effects? How do these potential maximal discharges compare with Galveston Bay in terms of volume of discharge and rate-efficiency of dispersal? Table 111 - 13 is superficial. Leaving aside questions about their estimates of spill size and frequency, this table is short on considerations of impact effects on productivity, nitrogen fixing phytoplankton (a new area that may well be quite significant), effects of dispersants interaction effects with red tides, sewage outfalls, thermal waters from nuclear power plants. There is also the possibility of conflicting effects. With our current ignorance, it is possible that brine waters might enhance phytoplankton growth. Advantageous perhaps, but it would also perhaps enhance red tides. This is a hypothetical consideration but it points out a major weakness of this DES. This is the failure to consider the environment as a complete entity of many interactions. It is knowledge of these interactions that we must have before additional variables from OCS leasing and drilling are fed into the system.

I wish the DES had documented, by description with hard evidence, those "other human influences" (2, 111) which they believe"are potentially more detrimental to bay or estuarine organisms . . . ." Human influences can be controlled by regulation. Oil spills, as this DES itself states, are an inevitable consequence of leasing and drilling. Damage to plants could approach 100%, and this could be followed by erosion if successive spillage maintained permanent damage. Erosion is very detrimental.

It is misleading (2 113-114) to use St. Anant's opinions as support for the contention that long term exposure has minimal effect. The Gulf of Mexico (productivity 0,15 gms $C/m^2/day$) is not Southern California (0.55 - 1.11 gms $C/m^2/day$). Assumptions, predictions or proposals for Southern California must be based on data derived from Southern California. This is a major deficiency, and the apparent reluctance of this DES to acknowledge this represents a major inadequacy of the DES.

Why (2 114) are "the high concentrations of oil in . . . and effects of brine effluent . . . hard to extend to OCS operations." I would think these are conditions that might arise. On page 113, 45ppm oil is considered a low concentration.

In the discussion (2, 119) of Baker's results on salt marshes, the DES fails to point out that Baker (Environ. Pollut. 4, 222. 1973) commented that there is only "considerable powers of recovery up to four successive oil spillages." Above that number there is considerable long term damage.

This leads into the question of toxicity. Throughout this DES there are comments about types or constituents of oils and their toxicity. Toxicity is relative and there is inadequate discussion of this. It also depends upon concentration or dose, length of exposure, frequency of exposure and possibility of organismic or environmental detoxification. All of these are pertinent to oil spillage, etc., and the cursory treatment rendered is a further inadequacy of the DES.

One could well envisage, from their own statements (2, 120), that estuarine and bay areas could well be permanently destroyed. The DES admits "widespread death and destruction" from a major spill with "biological recovery from one to several years." Their own estimates (and probably minimal) suggest a major spill every 7 to 10 years. This suggests a very good chance of permanent destruction of the biota and effects subsequent to that destruction.

This DES is further inadequate in that it fails to consider the appropriateness of past impacts to the immediate cases under consideration. It states (2, 124), in reference to the Tampico Maru spill and the San Francisco Bay spill, that oil spills do not permanently damage impacted intertidal areas. There is only a limited analogy of instances of one-time oil spills in non-leased, non-drilled areas to spills and permanent seepage in drilling areas. The DES refers to Santa Barbara area seepage

(2, 53ff) and comments that at Coal Oil Point there is no serious pollution damage. DES fails to state, however, (see Environ. Pollut. 2, 115, 1971) that"downstreams" at Campus Point, there is marked tar buildup and that those authors commented, "There is clear indication that a subtle and gradual erosion of this natural resource has begun." There is a tendency in this DES to consider only half the story, and this undoubtedly stems from a failure to consult original literature. This is inexcusable and represents a serious deficiency of this DES and cannot but raise questions about its objectivity.

As a final comment to this section I would mention that this DES has a major weakness in its failure to discuss "damage." It is used as a catch-all phrase, usually implying death or visual damage. It is very importantthat there be a distinction between that and physiological (non-visual) damage. This represents one of our most serious deficiencies in knowledge. I am referring to damaging effects on photosynthesis, respiration, nitrogen metabolism (including fixation), growth and reproduction. In the long term analysis, especially with regard to the food chain, these are equally important as simple mortality. A few observations have been made (quoted), but, quite simply, we know very little about the physiological effect of oil on algae and phytoplankton. In view of the importance of such information, I would have expected a more thorough discussion.

Much of the data that are used to buttress arguments of minimal damage are based on individual, isolated, non-cumulative effects. What happens when there is a continuous or cumulative effect? I have emphasized before, that this DES shows deficiencies by failure to adequately consider this problem. It is possible (2, 164) that pipeline installation will necessitate a 2 year recovery for a disturbed kelp bed, and that several years will be needed after an oil spill for recovery of non-kelp organisms (even if the kelp survives). What happens when these two coincide, perhaps in addition to other environmental impacts, and are of a continuing nature?

III

GENERAL COMMENTS

On 2, 49, the DES states, "it remains to be conclusively demonstrated that marine biotic communities generally lack the capacity to absorb the effects of acute oil pollution episodes without sustaining significant permanent damage." This statement implies that everything will be fine. In addition to comments of applicability of other data to this situation, which have already been discussed, I wish to emphasize that the amount of work with this problem has been negligible, and much of what has been done, has been taken from "after the event" observations of isolated instances. When one talks about the "lack of results" or "non-conclusive demonstrations" it is very important to also consider the circumstances, (the experimental how and what), by which these deductions were reached. This DES is deficient in this regard, and shows an inadequacy not expected in a document of this type. The statement, "Possible exceptions are situations where pollution is extremely widespread or of long duration" is an understatement, and in view of the potential for this, I would have expected greater emphasis.

The discussion (2, 50-51) indicated, for a number of reasons, that the Santa Barbara spill wasn't as extensive as it could have been. This, together with an order of magnitude difference in size estimates, suggests that this spill should be regarded as the base minimum for impact.

For these reasons, and others discussed in this review, the statement summary on page 55 is unacceptable. We cannot really predict what will happen in an oil spill simply by referral to Santa Barbara data. Santa Barbara is not the "best to predict". It is only the "best we have" but still a long way short of the "best we need". Summary statements should not imply more than is appropriate, or more than the data suggests.

The DES states (2, 68), "no evidence was found in the literature that spilled oil enters marine food chains . . . ." This problem of the food chain has already been considered, but this DES statement gives no indication of how much work was done, whether negative results were obtained during a definitive investigation for results, or whether the investigations were designed specifically to produce positive or negative evidence. This is a somewhat sloppy approach, and the statement should not be interpreted to mean that spilled oil does not enter the food chain.

A similar sloppy misrepresentation occurs on 2, 75 in the statement, "literature indicates that the plankton population of the Southern California ecosystem will probably be able to absorb the impact of a major oil spill and recover fairly rapidly." This doesn't get to a key issue - How much literature is there, how much is based on Southern California investigations, and what were the type and scope of investigations.

IV

OVERALL VIEW OF SCIENTIFIC NEED

Let us assume that OCS leasing and drilling, with the concommitant unavoidable adverse effects (2, 407) will occur. It is obvious that we should know what all these effects will be, qualitatively and quantitatively, long term and short term, at every level of organisation and impact. Many of these effects will be special or specific to Southern California and cannot necessarily be deduced by analogy from other areas of the world. I am strongly of the opinion that we must have as much information as possible before we start OCS operations. This information must be obtained from investigations and experiments, specifically designed to yield the appropriate data. With this baseline data we have a better chance to predict what will happen under all possible circumstances and design OCS operations accordingly. Without the data we are just asking for trouble.

V

SUMMARY

This Draft Environmental Statement has been reviewed with a view to the applicability of the marine algae, phytoplankton and maritime vegetations. Criticisms and comments apply only to these areas and do not imply similarities in other sections. In brief this DES is deficient in:

1) Consideration of interactions of spillage with other environmental impacts as sewage outfalls, thermal waters from nuclear plants.

2) Failure to integrate the entire environment. Oil spillage cannot be compartmentalised out, and considered separately. It must be looked at in the concept of the entire environment.

3) Failure to fully consider effects on physiological activities, and a weakness in disregarding the difference between these and visual damage or death.

4) Failure to give proper consideration to the problems of brine impacts, impacts on red tides, impacts on mariculture operations, possible impacts of detergents and emulsifiers if they are used.

This DES is weak in that there is minimal consideration of the future - the next 10-20 years. There is far too much of a tendency to equate what has happened in the past with what will happen, qualitatively and quantitatively, in the future.

This DES is inadequate and deficient because there has apparently been only minimal reference to the original literature. The dependence upon other reports and summaries has yielded only half the story, often with important "caveats" omitted.

The DES has failed to consider the extreme range of possible impacts, relying much to much upon minimal impacts as the criteria.

The DES has effectively failed to realize that Southern California is not the Gulf of Mexico, and has failed to add a very necessary cautionary note in extrapolating Gulf of Mexico data to Southern California.

The DES is deficient in failing to emphasize the need for baseline data - How do we effectively monitor impact if we don't fully know or understand the environment being impacted. 2-3 years minimum are needed to obtain this in a concerted effort. Throughout the DES I detect distinct evidence of failure or inability to critically evaluate data, one of the most serious weaknesses of the statement.

Finally an Environmental impact should address itself critically to the impact at all levels and into the future. This statement fails in this regard, and is more an uncritical resumé of what has happened. My considered opinion is that Draft Environmental Statement for OCS sale No. 35 is inadequate, deficient and unacceptable.

a. Southern California Council of Local Governments

The Southern California Council of Local Governments submitted a 202 page review of the Southern California DEIS. This review contains numerous detailed comments covering a wide variety of subjects. Where appropriate, changes have been made in the final statement which reflect these comments. The following pages discuss the disposition of the major relevant comments. The responses follow the outline of the Council's comments.

I. Summary

Disposition: The comments summarized in this section of the Council's analysis have been responded to herein under the principal section in which they appear.

II. The Requirements for a Legally Adequate EIS

1. The Duty to Consider Environmental Factors

2. The Standard of Strict Compliance

Disposition: The Bureau of Land Management does not believe that the material in these two sections requires a response.

3. Legal Sufficiency of Draft Tract Specific EIS

Disposition: The comments contained in this section of the analysis are in the nature of a summary of the comments appearing in succeeding sections of the analysis, and have been responded to herein under the principal section in which they appear.

III. Prematurity of Environmental Review Process for Southern California OCS Leasing

The Southern California Council of Local Governments contends that the draft environmental impact statement for the proposed OCS oil and gas lease sale of lands offshore southern California (site-specific DEIS) was prepared prematurely. The council contends that the site-specific DEIS was prepared and issued in advance of two critical stages in the decisional process: (1) the completion of a final environmental impact statement (OCS programmatic FEIS) for the proposed program to accelerate OCS leasing nationwide, containing all relevant comment on the environmental effects of the proposal; and (2) a decision on whether to lease nationwide, and if so, when, where, and according to what safeguards. Further the site-specific DEIS is legally insufficient _per se_ in its present form because it fails to consider the environmental information contained in the yet-to-be-released OCS programmatic FEIS or the character of any decision to lease.

Concern was expressed about the scheduling of public hearings on the site-specific DEIS before revisions were made in the OCS programmatic DEIS, and the revised statement had been made available to the public.

The reasons given for this concern are as follows: (1) the citizens of California would not be able to consider and comment intelligently and responsibly on the site-specific DEIS until they had had an opportunity to consider the revisions made in the OCS programmatic DEIS; (2) with a deadline for public comment on the site-specific DEIS of May 23, 1975, no meaningful opportunity to review that document in light of the OCS programmatic FEIS had been provided; (3) there would be a substantial waste of time, effort, and money by local agencies and citizens who wished to comment on the site-specific proposal if a decision is later made not to proceed with the expanded nationwide accelerated leasing program; (4) proceeding with the site-specific DEIS prematurely, with the attendant commitment of substantial resources by Interior, created a likelihood of being on the part of the agency in favor of a decision to drill both nationally and in southern California.

Disposition: The Bureau of Land Management has carefully considered the points raised in the comments submitted by the Southern California Council of Local Governments, the requirements of the National Environmental Policy Act of 1969 (42 U.S.C.§ 4321 et seq.) (NEPA), and the guidelines of the Council on Environmental Quality (40 CFR Part 1500) (CEQ Guidelines). The Bureau of Land Management believes that the procedures this Department has adopted for considering the issues raised in the OCS programmatic DEIS and the specific question whether to lease lands offshore Southern California, including the timing of public hearings on the site-specific DEIS in May 1975, fully comply with the requirements of NEPA and are consistent with CEQ Guidelines. The procedures were designed to and will afford the opportunity for full public participation in the Department's processes for considering the two proposals.

Reasons for Proposals. Among the principal reasons why the Bureau of Land Management is proposing an accelerated OCS leasing program and proposing an OCS lease sale of lands offshore Southern California are: (1) that the nation should become more self-sufficient in meeting its energy requirements; and (2) accelerated OCS leasing may be an acceptable way of contributing to this goal. Moreover, the Bureau feels that meeting near-term domestic energy requirements, i.e. during the period 1975-1985, is highly important in insulating the nation from the adverse effects, economic and otherwise, of relying upon foreign imports for any substantial portion of our energy requirements. In this regard, the Southern California OCS area is one of the most promising areas for substantial near-term production. These views are shared by many.

Reasons Why Procedures for Considering Proposals Are Appropriate. There are several reasons why we believe it was appropriate to prepare the site-specific DEIS and to hold public hearings on that statement prior to completion of the OCS programmatic FEIS.

1. The site-specific FEIS will serve a specific purpose separate and distinct from the OCS programmatic FEIS. It has been designed to be in and of itself a complete FEIS according to the provisions of Section 102(2)(C) of NEPA. It provides information and data on all topics enumerated in that section and has been designed to provide information which will assist the Secretary in making such decisions as whether or not to hold an OCS oil and gas lease sale for lands offshore Southern California in 1975, whether it should be deferred, what tracts should be included in any sale, or what terms should be incorporated in any lease issued if ther is a sale.

On the other hand, the OCS programmatic FEIS is designed as a broad study of the potential environmental impacts of and alternatives to a proposed policy decision to accelerate OCS leasing nationwide, including but not limited to, potential leasing offshore Southern California. The OCS programmatic FEIS will provide detailed information to enable the Secretary to make such decisions as to whether an acceleration in OCS leasing nationwide should be implemented, and if so, to what extent and in what manner it should be implemented.

Therefore, while there is a relationship between the programmatic proposal and a proposal for a lease sale within the ambit of the program, there are significant differences. The focus and detail of the information and data supplied in the two statements will differ substantially. Issues that must be covered in detail in the site-specific FEIS would have no place whatsoever in the OCS programmatic FEIS. Much of the information provided in the latter statement would have only a very general connection with potential leasing offshore Southern California. Thus, the great bulk of the material in the site-specific FEIS is not contingent upon the information and data in the OCS programmatic FEIS and is subject to independent evaluation and comment by interested members of the public.

2. The site-specific DEIS contained a discussion and analysis of the relative impacts of the following alternatives: (a) broad energy alternatives to OCS oil and gas leasing and development; (b) alternative OCS leasing areas nationwide; and (c) alternative OCS leasing areas within the Southern California area. Thus Federal, State, and local agencies, and interested members of the public were in a position to evaluate the analyses of these alternatives and comment on them at the public hearing held in May 1975.

3. With respect to the timing of public hearings on the site-specific DEIS, the Bureau of Land Management considers that there is no requirement in NEPA or the CEQ Guidelines which would cause the timing to be dependent on the status of the OCS programmatic FEIS. The only reference to timing in the CEQ Guidelines is that the DEIS should be made available at least 15 days prior to the time of the hearings (40 CFR 1500.7)(d)). In the present case, we provided in excess of 60 days notice from the date the site-specific DEIS was made available to the public (February 21, 1975). While NEPA does not require public hearings at any time, we felt that it was appropriate and beneficial to hold such hearings in this case.

4. Section 1500.6(6)(1) of the CEQ Guidelines does not call for preparation of a site-specific DEIS only after completion of a programmatic EIS, nor does it call for public hearings at any state of the EIS process referred to therein. This section provides that, where an agency has been proceeding with the individual actions which have been evaluated in a program EIS, and thereafter the agency considers a major individual action not evaluated in the program EIS, a subsequent EIS would be called for. In its consideration of the proposed program to accelerate OCS oil and gas leasing nationwide, the Department stated at the outset that it would prepare a program EIS and separate EIS's for the major individual actions of any program adopted, i.e., a site-specific EIS for any proposed lease sale. Thus, the Department does not propose to hold any lease sale based solely on a program EIS, without the benefit of a separate site-specific EIS for that proposal. In our view, this is fully consistent with the provisions of the CEQ Guidelines cited above.

5. The Bureau of Land Management believes that the procedures it has been following with respect to the proposals in question are in the public interest in providing for consideration of important energy proposals in an expeditious manner, without undue delay. If it is determined that an accelerated OCS leasing program is warranted in the circumstances, the only rational course for the Department to follow would be to proceed to fully consider each sale proposal involved in that program in an orderly and expeditious fashion to determine whether the sale proposal would be environmentally, technically, and economically acceptable. If it were determined that a particular sale proposal would be environmentally unacceptable, in whole or in substantial part, then the Department would be in a position to continue without undue delay to consider other possible sales to compensate for the effect upon that program of the rejection of the unacceptable proposal.

The Bureau does not subscribe to the view that there has been excessive haste in connection with the consideration of the proposal for a lease sale offshore Southern California. The proposed sale has been under consideration by the Department of the Interior since April 1973. Thus, this process has to date covered a period of some two years and four months.

If it should be determined that an accelerated program is not acceptable at this time, or that, in any event, a lease sale of lands offshore Southern California is not acceptable at this time, the Departmental resources expended during this process would not have been wasted. For the need to become more self-sufficient in domestic energy production will remain, and the Department may then turn to investigating other means for achieving the goals in question which may be determined to be acceptable, environmentally and otherwise. Moreover, a prime purpose of NEPA is to provide for environmental evaluation of proposals, which would, when leading to determinations of unacceptability, and although costly, cause the rejection of the proposals.

6. The Bureau of Land Management believes that the Departmental efforts to enlist public participation in the matter of the proposed program to increase OCS oil and gas leasing nationwide, and particularly with respect to the potential oil and gas leasing offshore Southern California, have been unprecedented in breadth and scope. The Departmental effort to gain the benefit of the views of the public on these matters began in February of 1974, at which time we requested comments from the public on matters of environmental concern involving the proposed accelerated OCS leasing program and a possible OCS oil and gas lease sale offshore Southern California. In May of 1974, the Department prepared a detailed document announcing its intention to prepare an environmental impact statement for the proposed accelerated OCS leasing program. The purpose of this document was to give the public a full understanding of the reasoning behind the proposed accelerated program, the determination to prepare a formal assessment of the environmental impacts of that proposal, and to identify the topics which would be covered in the environmental impact statement.

Since that time Departmental officials have participated in scores of meetings in Southern California. Public hearings (3 days) were held in Southern California on the OCS programmatic DEIS in February 1975, and similar hearings (3 days) were held on the site-specific DEIS in May 1975. We are unaware of any similar effort to involve the public in the consideration of a proposal being studied under NEPA, either within the Department or any other governmental agency.

Status of Procedures for Considering Proposals. The Department has revised the OCS programmatic DEIS in light of the oral and written comments submitted during the public hearings held in Anchorage, Alaska, Beverly Hills, California, and Trenton, New Jersey, in February 1975, and all other comments received during the comment period from Federal, State, and local agencies, and interested members of the public. An OCS programmatic FEIS was submitted to CEQ and made available to the public in July, 1975. The Department has announced that there will be a 60-day review and comment period following publication of the OCS programmatic FEIS. This has been provided in order to allow governmental agencies, citizens' groups, and interested members of the public to have an opportunity to comment on the revised content of the OCS programmatic FEIS. The Secretary has stated that he will make no decision during that period regarding the proposal covered by the OCS programmatic FEIS, nor on the proposal covered by this site-specific FEIS. The planned comment period is twice as long as the period called for by the CEQ Guidelines.

The Department has also announced that during this period, comments will be accepted on the site-specific DEIS, and FEIS when issued. Persons submitting comments have the opportunity to include comments on topics and issues that are considered interrelated with or affected by the discussion and ayalysis in the OCS programmatic

FEIS. Moreover, the public will have the additional opportunity to review and comment on the site-specific FEIS during a period of 30 days after that statement has been submitted to CEQ and made available to the public. The Secretary has stated that he will make no decision as to the southern California OCS lease sale proposal until the period for comments on both the OCS programmatic FEIS and the site-specific FEIS have expired, and only after he has considered the environmental, technical, and economic aspects of that lease sale proposal. In addition, the Secretary is committed to consult both Governor Brown and Mayor Bradley of Los Angeles before any decision is made as to a southern California OCS lease sale.

While it is true that an agency may proceed to make a decision on a proposal 30 days after a final EIS has been submitted to CEQ and made available to the public, a question may arise as to the adequacy of the final EIS. Should comments be received during this 30 day period which point up the inadequacy of a final EIS, an agency would be acting at its peril if it took affirmative action, but refused to take such comments into consideration. While the Department is not required to provide a 60 day comment period on the final programmatic EIS, there certainly can be no reason why the Department cannot of its own motion provide for such a period. Where as here, governmental agencies and the public have shown a great interest in a particular proposal, the Bureau of Land Management believes that it is a sensible course of action to provide additional time during which the public may submit comments. The Bureau intends to consider and evaluate any comments received during this 60 day comment period. If any of the comments show that revisions are needed in the OCS programmatic FEIS, revisions will be made. Should this result in curing a possible inadequacy of the final EIS, and in eliminating the disposition of a state agency, local agency, or group of citizens to institute litigation to require correction of an inadequacy in the FEIS, we certainly feel that it would comport with the mandate of NEPA, and the spirit and letter of that law.

The Bureau of Land Management believes that Judge Eisele, in Environmental Defense Fund v. Corps of Engineers (Gillham Dam), 342 F. Supp. 1211 (E.D. Ark. 1971). Aff's, 470 F.2d289 (8th Cir. 1972), made an excellent exposition of this approach. He stated as follows:

> "Although the impact statement should, within reason, be as complete as possible, there is nothing to prevent either the agency involved, or the parties opposing the proposed agency action, from bringing new or additional information, opinions, and arguments

> to the attention of the 'upstream' decision-makers even after the final EIS has been forwarded to CEQ. So it is not necessary to dot all the i's and cross all the T's in an impact statement...
>
> "It is doubtful that any agency, however objective, however sincere, however well staffed, and however well financed, could come up with a perfect environmental impact statement in connection with any major project. Further studies, evaluations and analyses by experts are almost certain to reveal inadequacies or deficiencies. But even such deficiencies, discovered after the fact, can be brought to the attention of the decision-makers, including, ultimately, the President and the Congress itself." (342 F. Supp. at 1217.)

In summary, with respect to the opportunity for public comments on the site-specific EIS for the proposed OCS lease sale of lands offshore Southern California, and the proposal, the Department has provided three commenting periods, which are as follows:

1. Site-Specific DEIS Hearing and Comment Period. The Department accepted written testimony and comments on the site-specific DEIS and on the proposal, from February 21, 1975 through May 23, 1975. Oral comments were accepted from the public at public hearings held in Los Angeles on May 6,7 and 8, 1975. Written comments were accepted until May 23, 1975, in order to allow time for those unable to testify at the hearings to make their views known and for the submission of supplemental materials by those who had presented oral testimony.

2. OCS Programmatic FEIS Review and Comment Period. The Department has announced that it will accept written comments on the site-specific DEIS, and FEIS when issued and on the proposal, during the review and commenting period of 60 days following submission of the OCS programmatic FEIS to CEQ and the date of its availability to the public. Interested individuals, representatives of organizations, and public officials submitting written comments during this period will have the opportunity to comment on those topics, issues and aspects of the site-specific impact statement that may be interrelated with or affected by the discussion and analysis in the OCS programmatic FEIS.

3. Site-Specific FEIS Review and Comment Period. The Department will accept written comments on the site-specific FEIS, and on the proposal, during a review and commenting period of 30 days after the site-specific FEIS has been submitted to CEQ and made available to the public. Interested individuals, representatives of organizations and public officials submitting written comments during this period will have the opportunity to comment on any aspect of the site-specific FEIS and on any interrelation with the discussion and analysis of the OCS programmatic FEIS.

IV. Inadequacies of the EIS

A. OCS Issues not Adequately Covered in Either the Draft Program E.I.S. or Draft Tract E.I.S.

1. Need for Coherent National Energy Policy

Disposition: National energy policy considerations are discussed in the OCS programmatic FEIS. Refer to Section VIII.A. of that document.

All significant energy alternatives, including conservation of energy, are discussed in the EIS's Alternatives to the Proposed Action in Vol. 2, Section VIII.B. This section has been substantially revised for the Final EIS. Lack of resource availability, technological inadequacies, and/or economic feasibility are some of the factors associated with solar, geothermal, nuclear, oil shale, hydroelectric, bio-energy, and wave motion energy sources. At the present time, increased imports and coal may present viable alternatives to increased OCS oil development.

The extent to which existing oil supplies can be increased and the production of the Elk Hills reserves is discussed in Vol. II, Section III. J.3. The Alaska Naval Petroleum Reserve #4 could produce 2 million barrels per day by 1985; if we include an estimated 1.3 million BBL's/day of potential Atlantic OCS oil production, in addition to more efficient recovery methods of existing oil wells, then the U.S. could perhaps be producing 20 million barrels per day by 1985 and be independent of foreign crude. (Project Independence Report, page 83). See also our response to the State Resources Agency.

2. No Discussion of Relative Environmental Impacts

Disposition: The uniqueness of the Southern California OCS is discussed at length in the Draft EIS, as are the potential hazards to that environment. See responses to California Resources Agency for further discussion. Relative potential impacts for alternative leasing acreage in the southern California OCS area are discussed in Section VIII. A.2. Refer to the Programmatic FEIS for a detailed discussion of the relative impacts for the major OCS areas nationwide.

3. Degradation of Air Quality

Disposition: While refinery capacity may be considered to be governed by demand growth for petroleum products, the potential impacts of one new refinery or the equivalent in added capacity at existing refineries are discussed in Section III.I.2., J.1. and J.2. The additional impacts on air quality that would result from this proposed sale are discussed in Vol. 2, Section III.F.1. of the Draft EIS. However, in light of the unique air pollution problems in Southern California, the proposed sale's impact on air quality is more carefully analyzed in the final EIS. Section III.F.1. has been revised substantially.

4. Onshore Land Use Impacts

Disposition: As a direct result of this proposed sale, 100 - 200 acres of land would be needed for new onshore facilities. A new major (complex diversified) refinery with a production capacity of 200,000 bbl. per day and 40 days storage capacity would require an estimated 800 acres. While this acreage is insignificant in relation to the total southern California area, we recognize it could be environmentally significant depending upon location and other factors. Also refer to response to No. 3 above.

5. Economic Losses to Local Governments

Disposition: The economic losses resulting from oil spills will be borne by the lessee, as stated in OCS Order No. 7, June 1, 1971 (Vol. 3, Appendix 5). Parts (a), (b), and (c) of OCS Order No. 7 clearly state that the lessee is responsible for the cost of clean-up of any spills. The lessee's liability to third parties would be determined according to applicable law.

The cost of additional municipal services provided to OCS related employees for proposed Sale No. 35 would be minimal. At the height of development, 1985-1990, the maximum number of OCS related employees would be 15,000 persons. As pointed out in Vol. 2, Section III.J.2., these workers and their families would represent an 0.18 percent increase in population. The benefit to state and local government, as a result of this proposed sale, would be $1 billion in revenues. Income from primary employment is estimated at $25 billion. Using a conservative multiplier of 2.5, this yields $87 billion of economic activity for the country.

Regarding the prevention of waste and conservation of the natural resources of the Outer Continental Shelf, regulations have been promulgated establishing bonding requirements for lessees, 43 CFR 3304.1, 3304.2, and liability for oil spills resulting from operations, 30 CFR 250.43. Comments received by the Department have suggested that the amount of the required bonds should be increased and that absolute liability for oil spills resulting from operations should be extended to include damages suffered by state and local governments and third parties as a result of such spills. Furthermore, a mechanism should be created whereby third party damages could be assessed and collected expeditiously from the party causing the spill.

The bonding regulation is intended to implement the statutory requirement that the successful bidder be one who is responsible and qualified. 43 U.S.C. § 1337(a). The bond is conditioned upon compliance with all the terms of the lease. For an individual lease the bond must be in the amount of $50,000 or the lessee may furnish a $300,000 bond to cover all the leases he may hold within a given geographical area specified in the regulation. The right is reserved to the United States to require additional security in the form of a supplemental bond or bonds or to increase the coverage of an existing bond if, after operations or production have begun, need for such additional security becomes apparent. This has never been deemed necessary in prior operations. No limitation on the amount of bonds is set by the OCS Act. Thus, the amount of the initial bond required by 43 CFR § 3304.1 could be increased by an amendment to that regulation. Differing policy considerations within the discretion of the Secretary bear upon any decision to increase the amount of the initial bond.

The lessee is required to bear the expense for the control and total removal of pollutants proximately resulting from drilling or production operations conducted by or on his behalf. 30 CFR § 250.43(b). The absolute liability for the costs of cleaning up a spill does not extend to damages suffered by third parties as a result of the spill. The regulation provides that the lessee's liability to third parties is governed by applicable law. Adjacent state civil and criminal laws effective as of August 7, 1953, date of enactment of the OCS Act or other Federal laws and regulations of the Secretary apply to operations on the Outer Continental Shelf.

The administration is supporting legislation which would establish a mechanism to assess and collect third party damages expeditiously from the party causing the spill.

6. Coastal Zone Management Act.

Disposition: The site-specific DEIS was published February 21, 1975, prior to the release of the Preliminary Coastal Plan of the California Coastal Zone Conservation Commission. Thus, it was not possible to discuss the coastal plan in that statement. The preliminary plan is discussed in Sections I.B. and IV.A.6., and in the response to the California Coastal Zone Conservation Commission.

It is our opinion that if a decision were made to proceed with the proposed sale it should not result in decisions which would be inconsistent with any coastal plan ultimately approved by the California Legislature. Current regulations provide for a careful review of the development stage which is the point at which offshore activity begins to have an impact on the coastline. This stage normally occurs several years after the issuance of leases. Prior to the approval of a development plan, careful consideration will be given to any onshore impacts. An alternative within the proposed sale is to provide for a pause between the exploration stage and production stage of lease operations which would involve changes in the lease language putting prospective lessees on notice that the development plan would need to include coverage of potential onshore impacts and that adequate time would be needed for review by and coordination with the affected States. See Section VIII.E.2.

The Administration has taken the position that potential OCS leasing activities, prior to development of coastal zone management plans, would not place adjacent States in an untenable position in planning for potential onshore impacts. In discussions with the coastal states

Governors in November 1974, both President Ford and former Interior Secretary Morton responded to suggestions that lease sales should not be held in frontier areas until the coastal States have completed detailed plans to accomodate the onshore impact of offshore production. They took the position that it was neither wise, nor necessary to delay decisions regarding leasing for several years until these plans are complete. Delay is not wise because the coastal States have only begun to establish mechanisms for coastal zone planning. Delay would not be necessary because any shoreside impact would not occur for several years following any lease sale. This would provide ample time for State and local planning. Moreover, detailed planning by the State and local governments for the onshore impact of offshore oil and gas production cannot be done until the exact location of offshore oil and gas is known from actual drilling. The President stated that we want to increase our efforts and funding under the Coastal Zone Management program to assure effective cooperation with the States in this important area.

A copy of the site-specific DEIS was submitted to the California Coastal Zone Conservation Commission in February 1975. Richard Hammond of that Commission's staff presented oral testimony at the Department's public hearings on the draft statement in Los Angeles during May 1975, and submitted written comments as well. Joseph E. Bodovitz, Executive Director of the Commission, submitted additional comments on June 20, 1975. See response to California Coastal Zone Conservation Commission.

William E. Grant, Manager, Pacific OCS Office, Bureau of Land Management, testified at public hearings conducted by the California Coastal Zone Conservation Commission on the Commission's Preliminary

Coastal Zone Plan in Long Beach on May 14, 1975. He pledged that the Bureau would continue to cooperate with the Commission with respect to the development of a coastal zone plan and the proposed OCS lease sale. The staff of our Pacific OCS Office has consulted with the Commission on at least 10 occasions. Moreover, Mr. Web Otis, the Secretary's Field Representative in San Francisco, has consulted the Commission regarding the Department's proposed lease sale on numerous occasions. In our opinion, the contacts referred to above show a pattern of cooperation, coordination, consultation, and notification between this Department and the State Commission.

If a final Coastal Plan is adopted by the California Legislature and approved by the U. S. Department of Commerce pursuant to the Coastal Zone Management Act of 1972, the activities of Interior or of potential Federal oil and gas lessees thereafter directly affecting the coastal zone shall, to the maximum extent practicable, be conducted in a manner consistent with the approved management program.

B. Environmental Impact of Southern California OCS Leasing

1. Insufficient Data for Environmental Analysis

Council: The council refers to the lack of knowledge of many impacts to various components of the marine ecosystem.

Disposition: The Bureau of Land Management has initiated a major environmental baseline study of the proposed OCS lease area, including a bench-mark marine mammal-bird study and a bench-mark study of the biological, chemical, and physical aspects of the existing marine environment. These studies will continue for a minimum of one to two years. While the proposed lease sale would, if a decision is made to hold the sale according to present scheduling, occur before completion of the bench-mark environmental studies, information and data from such studies will be utilized in supervising potential lease operations. The Federal government does not lose control simply because of lease issuance.

Departmental regulations and OCS Operating Orders govern lease operations and may be amended or modified from time to time. OCS leases provide that the leases are subject, inter alia, to regulations thereafter promulgated pursuant to section 5(a)(1) of the OCS Lands Act (43 U.S.C. § 1334(a)(1)) for the prevention of waste and the conservation of natural resources. OCS leases would also be subject to any OCS Operating Orders which may be adopted to implement such regulations. Detailed plans for development must be approved by the Geological Survey before any development can commence and supervisors and inspectors from that agency monitor every phase of development and production operations. If the bench-mark environmental studies show that changes are warranted in the regulations or operating orders, or that additional requirements must be imposed before approval can be given to development plans, such action will be taken.

The Geological Survey supervisors are empowered to shut down operations on any lease when conditions warrant this action, and have done so on a number of occasions when public safety and public resources were, in their judgement, in jeopardy. The Department's authority in this regard has been affirmed in Sierra

Club v. Morton, 510 F.2d 813 (5th Cir. 1975) (MAFLA OCS Lease Sale No. 32).

The Secretary is given wide authority to issue regulations in the interest of conservation by section 5(a) of the OCS Act. Section 5(a) specifically authorizes him to issue regulations for the suspension of operations in the interest of conservation. The Ninth Circuit has recently held that, when the Secretary validly suspends operations on a lease in the interest of conservation, the lessee will receive an extension equivalent to the suspension. Gulf Oil Corp. v. Morton, 493 F.2d 141 (9th Cir. 1973), as modified on Petition for Rehearing, 493 F.2d 149 (9th Cir. 1974). Conservation of natural resources was given a broad meaning by the court in that case.

Where it is shown that the suspension is in the interest of conservation, there is no time limit set on the suspension, but that of reasonableness. There are limits, however, to the Secretary's authority to suspend leases for this purpose. The Gulf case held that a suspension while legislation to terminate a lease was pending could be justified for one Congress, but not for Congress after Congress. Moreover, there can only be a suspension which gave promise of eventual development, not a suspension which was in effect a termination. Union Oil Co. v. Morton, 512 F.2d 743 (9th Cir. 1975).

In view of the above, the Bureau of Land Management believes that if the proposed sale is held as scheduled, information and data derived from the bench-mark environmental studies will be available and can be utilized in a timely manner before any potential development and production operations begin. Moreover, if the lease sale is held, the Bureau of Land Management will provide an environmental monitoring study and special environmental study projects pertinent to the proposed sale area and potential operations in order to determine, among other things, the nature of any changes resulting from OCS development and production activities.

Also, refer to Section I.D. Baseline Studies and Section VIII.C. Alternatives to Delay the Sale.

Council: The council calls attention of the potential danger from consuming carcinogenic fractions of petroleum:

> According to Dr. Paul Yevich, a pathologist on the staff of the National Marine Water Quality Laboratory in Narragansett, Rhode Island, soft-shell clams, depending on the type of oil spilled, get a particularly pervasive form of reproductive cell cancer which quickly spreads to every organ. The scallops develop growths on the insides of their blood vessels and hearts, suggestive of certain cardiac conditions in man, as do the oysters, while the lobsters apparently suffer a loss of chitin, the material which hardens their shells.
>
> Besides reporting on field studies in several places where various kinds of oil spills occurred, Yevich told of laboratory experiments in which shell fish have been exposed to low levels of crude oil over periods of several weeks. In the face of such chronic exposure, even as little as one part per million of oil in water solutions produces pathological changes, he reported, and no one really knows whether even lesser concentrations may be harmful as well.
>
> Besides being potentially destructive of marine animals, oil spills may be a serious matter for man. Yevich, for example, had received reports from a physician in Texas that there had been a tremendous increase of allergies among people who eat fish that swim among the offshore oil rigs. Such reports merit investigation, the more so because softshell clams from the site of an oil spill and sub-

sequent detergent clean-up on the Canadian border have been found to have inflammed gills.

Disposition: Dr. Yevich's work has been mentioned in Volume 2, Section III.D.6.

Council: The council mentions the possibility of passing harmful pollutants up through the food chain as a result of an oil spill. They refer to Volume II, Page 87 of the DEIS. This portion of the EIS is discussing resuspending bottom sediments in areas of severe heavy metals or pesticide pollution as the result of construction of oil equipment. An oil spill alone would not cause the resuspension of bottom sediments but the laying of a pipeline could.

Council: Reference is made concerning the concentration of petroleum hydrocarbons in the food chain.

Disposition: See our response to Dames and Moore and Sections III.D.1. and III.E.3.

Council: Further mention is made of long-term effects and sublethal impacts and the lack of knowledge of this subject.

Disposition: The narcotic effect by low-boiling saturated hydrocarbons is mentioned in Volume II, Section III.B. The possibility of bone marrow disease, chromosone aberrations and leukemia caused by chronic exposure to low concentrations of some aromatics is also mentioned.

2. Failure to Measure Cumulative Impacts

Disposition: The potential cumulative impacts of the proposed sale are discussed in Section III.N. of the FEIS.

3. Need for Regional Analysis of Five District Areas

Disposition: We have included an analysis of the five separate proposed tract blocks in Section VIII.A.1.

4. Need for Further Study

Disposition: Refer to Section I.D. of the FEIS for a description of current and proposed baseline research programs and response under Section IV.B.1. herein.

C. Unavoidable Adverse Impacts

1. Oil Spills - Environmental and Economic Effects

Much of the biological comments in this section are covered in the DEIS, with the same conclusions made from the same references. These will not be commented upon specifically.

Council: In Section III.B. the council refers to the potential cumulative impact of spills in the marine environment year after year without opportunity for recovery.

Disposition: Cumulative impacts of oil spills are discussed in Section III.N. of the FEIS.

2. Onshore Land Use Impacts

Council: The comments received from the council include the following:

(1) The need to further explore the onshore impacts of offshore oil and gas operations.

(2) The need to expand on the impacts on the existing industrial infrastructure and the disposal of wastewater from the added oil support facilities.

(3) The need to explore the impact on the community infrastructures.

Disposition: Refer to the response to the comments of the Environmental Protection Agency. Section III.J.1. in the DEIS explores in detail the impact on both the industrial and community infrastructures. The subject of wastewater disposal from the added oil support facilities is covered in the same reference in the final EIS. It is felt that the comments made by the Council were based on an inadequate understanding of system and subsystems components. An impact on a large base, such as found in Southern California, will have a very minimal impact. The impact will be even less on each subsystem component as the thrust is weakened by the distributive factor and activities. It is granted, however, that the impact will be greater in the Ventura County area and the text has been enlarged to include that possibility.

3. Degradation of Air Quality

Council: The council of governments felt the following were needed in the FEIS:

(1) An expansion of the text on the assessment of oil spills on the onshore air quality.

(2) The need to enlarge on the effects of the plume from volatilized oil.

(3) The need to include the effects of oil pollution on agriculture.

(4) The need to quantify the air pollution impact.

Disposition: Section III.F.1. has been revised and expanded to analyze more fully air quality inputs. Refer also to our response to the Resources Agency of California which provides an indication of the expansion of the text in the final EIS.

4. Economic Losses to Local Government

Disposition: See response under Section IV.A.5. herein.

The studies cited by BLM as to costs and benefits of industry to local government cannot be compared to the Texas and Louisiana studies. These areas are vastly different in terms of population, industrialization, urbanization, and tax laws, therefore, studies of one area cannot be construed to hold true in another area. Furthermore, the Louisiana study uses the average cost of state and local services instead of the economically correct marginal (or extra) cost of providing services.

Council: On page 75 of the comments, the Council states that the analysis in the DEIS predicts high case estimates of oil spillage equivalent to one Santa Barbara spill per year.

Disposition: There were some arithmetic errors in Section III.A. in the Summary of Annual Spillage estimated. The section has been completely revised based on comments from EPA, USGS and Dames and Moore for the FEIS and reflects more correct figures.

D. Alternatives Inadequately Considered

1. The Alternative of Conservation

Disposition: The energy conservation section of the DEIS has been expanded in the Final EIS. Since completion of the draft EIS, a study of energy sources in the U.S., prepared by the University of Oklahoma for BLM has been completed. This study was used as a basis for preparation of the energy alternatives which are included in the final EIS in Section VIII.B.

E. Mitigating Measures Not Fully Considered

1. No Nearshore Drilling

Disposition: BLM is not proposing the timetable for development as suggested. It is estimating that exploration and development will follow the aforementioned timetable due to the state of technology and the economics of deepwater development. The five individual tract areas are analyzed, as to the environmental impact of drilling in each area, in the Final EIS in Section VIII.A.1.

The argument for no nearshore drilling in Santa Monica and San Pedro Bay is based on the idea that OCS development in Santa Monica and San Pedro Bays would be disruptive to the residents for aesthetic reasons. An alternative has been included that would require the use of subsea systems in those areas for aesthetic purposes. (See Section VIII.A.5.)

2. Economic Guarantees to Local Government

Disposition: See response under Section IV.A.5. herein.

Revenue sharing options are under active consideration by Congress and the administration. The economic costs and benefits of this sale are discussed in Volume 2, Section III.J.1. of the EIS.

3. Improved Drilling Regulations and Containment Capability

Disposition: U.S.G.S.'s OCS Orders No.'s 1 - 12 cover the safety and regulation problems of drilling and cleanup (see Appendix 5). A description of cleanup capabilities and resources on call to take care of oil spills is discussed in Section IV.C. We agree that continued research and development should be undertaken to improve the safety and reliability of cleanup capabilities and drilling technology. Refer also to Special Stipulations in Section IV.E.4.a.

F. Conclusion

Disposition

1. The Interior Department has announced a 60 day comment period following the release of the OCS programmatic FEIS. During this period, governmental agencies and the public may also comment on inter-

related issues in the programmatic FEIS and the site-specific DEIS and FEIS when issued. In addition, interested parties may submit comments on any aspect of the site-specific FEIS or on matters interrelated with the OCS programmatic FEIS for a period of 30 days following release of the site-specific FEIS. These comments will be considered and evaluated by the Bureau of Land Management.

2. The Programmatic FEIS covers discussion of national policies and relative effects of OCS leasing areas nationwide in detail.

3. Section I.D. of the FEIS discusses ongoing and proposed OCS baseline and research programs for the Southern California Borderland, and, if the proposed sale is held, a proposed environmental monitoring study.

4. Cumulative environmental impacts are discussed in Section III.N. of the FEIS.

5. Separate discussion of the five lease areas is covered in Section VIII.A.1.

6. Environmental impacts of the 1969 Santa Barbara blowout are discussed throughout Section III, Environmental Impact of the Proposed Sale.

7. Sections III.F.1. and III.I. have been expanded to discuss air quality impacts and onshore impacts more thoroughly.

8. Economic impacts are further discussed in Section III. J.2. Refer to the previous response to Comment IV.A.5. of this comment.

9. Section VIII.B. contains an expanded and revised discussion of energy alternatives.

10. Relative degrees of impact for each of the five lease areas can be found in Section VIII.A.1.

11. Refer to response number 8 above.

12. U.S. Geological Survey has jurisdiction over regulations and cleanup requirements during the operations stage. Refer also to the Special Stipulations in Section IV.E.4.a.

PART TWO

Scientific Advisory Committee Reports

I. Air Quality by R. L. Perrine

Demand Forecasts: The Need for the Resources

Disposition: The resources demand forecasts of pages 290 and 300 - 310, Volume 2, of the DEIS do not rely exclusively on the report of the California Resources Agency. The report by Sherman H. Clark Associates along with BLM's own projected demand forecasts are given equal weight in this section. The Clark Associates report is dated August, 1974 and BLM's analysis is dated November, 1974. On page 306, of Volume 2, of the DEIS BLM's analysis is depicted in table form. In this analysis energy conservation is taken into account, but a shortage of oil is still projected using the most optimistic assumptions for conservation and production of oil.

In the final EIS an updated projection by the California Resources Agency and data from the Preliminary California Coastal Plan has been incorporated to validate the demand forecasts for oil in California. See Section III.J.3.

Impact on Air Quality

Disposition: This section has been thoroughly revised and expanded based on these and other comments from EPA, Dames and Moore and the State Resources Agency.

The Availability of Qualified Manpower

Disposition: The oil industry has conducted and is continuing to conduct training classes in the area of safety and spill containment operations. The number of employees needed in the next 5 years (1975 - 1980) is only 3,669 as indicated in Section III.J.3., Volume 2, for a high case development. A lower level of development would require even fewer people. The number is small and the time is adequate to train the needed workers.

The alternative section of the Draft EIS has been expanded and rewritten for the Final EIS. See Section VIII.

Air Quality by James N. Pitts and Barbara J. Finlayson

Summary and Conclusions

Disposition: As stated in the preceding response to Dr. Perrine's comments, the impact on air quality section, Section III. F.1., has been substantially revised and expanded based on comments from EPA, the State Resources Agency, Dames and Moore as well as these detailed comments. We agree that the analysis in the DEIS minimized the onshore air quality impacts. The revised section in this final statement includes greater quantitative analysis of the potential amounts of pollutants which could be introduced into the air and the types of negative impacts which could result. We have added the figures provided in this comment to Sections II.H.1. and III.F.1.

Concerning the pollutant emission inventions presented in Section II.H.1., the 1972 data presented was obtained from the State Air Resources Central Board and the various local Air Pollution Control

Districts. We recognize that some of these data are in dispute due to more recent measuring techniques and that uncertainties are often large with data of this type. We have attempted to quantify the emissions from potential pollutant sources as a result of activity from this proposed sale in the revision of Section III.F.1.

Regarding the transport and dispersion of pollutants in the lease area to the South Coast Air Basin, we have added to our discussion in Section III.F.1. to more fully describe the possible transport due to meteorological conditions. We have also included the figures provided in this comment concerning transport of pollutants from a fossil fuel power plant stack. See Section III.F.1.

The discussion of potential agricultural impacts from potential pollutants has been expanded in Section III.F.1. Refer also to our response to the Bureau of Outdoor Recreation in Section IX.B.1.n. concerning affects on Ponderosa pines.

We thank Drs. Pitts and Finlayson for their detailed review of the DEIS. All of their specific comments on Air Quality in the full text of their comments have been considered and included as appropriate in the revision of Sections II.H.1. and III.F.1.

II. Chemical Oceanography by I. R. Kaplan

Baseline Information

Disposition: Presently identified seep locations are seen in the tectonic graphic, Graphic 12.

The figure of salinity versus depth in Section II.D. has a more complete description in the FEIS.

In the discussion of the chemical environment minor revisions have been made to enhance the comprehension of those not familiar with the chemical environment.

The location of the references in the appendix of the FEIS are indicated clearly in the Table of Contents for Section II.

The BLM statement in Section II.H.2., p. 712 of the DEIS is supported in the SCCWRP remarks on p. 190 of the Three Year Report (SCCWRP, 1973).

Environmental Impact of Drilling and Production

Disposition: Figure III-7 in Section III.B. of the DEIS is reviewed in more depth in the final text.

Comments and Recommendations

The final text has a discussion of BLM's on-going environmental bench mark studies, other proposed environmental baseline studies, and, if the proposed sale is held, a proposed environmental monitoring study. Within the ongoing study, seep areas will be delineated in the borderland (see Section I.D. for a summary of the baseline studies).

We do not have or know of any criteria, at this time, to be used to differentiate petroleum produced from OCS drilling, natural seeps and/or imported (or exported) petroleum. As the state-of-art progresses, for differentiation of petroleum, the Department will use the best method for the differentiation of petroleum of various sources in its on going baseline study.

III. Seismicity by James H. Whitcomb

This comment was concerned with the geological and geophysical aspects of the document. The analysis considers geological and geophysical aspects of the document in regards to earthquake potential and the associated environmental hazards.

Disposition: We appreciate these detailed comments and the many figures and graphs submitted and we have given them due consideration. In Section III.A. we have added a discussion of earthquake hazards. Within this discussion are given some conflicting view points expressed by another noted authority.

An errata sheet to the Graphics in Volume 5 clearly shows the Newport-Englewood fault and other major faults in Southern California.

IV. Marine Biology by Malcolm S. Gordon

Dr. Gordon states that the DEIS falls short in discussions of possible impacts caused by chronic exposure to oil pollution, and points to studies needed to permit an informed assessment of these impacts.

Disposition: As indicated in Section III.D.6., and throughout the Impact section, the impacts from chronic exposure are so poorly known that discussion much beyond that of Section III.D.6. would be entirely conjecture. The amount of chronic exposure which would be caused by the proposed sale is also somewhat speculative.

Special studies are being planned by this office on sublethal effects on some of the common marine organisms of Southern California. These will be laboratory studies that will cover many of the oil caused sublethal physiological effects similar to the studies which have been conducted on many Gulf of Mexico organisms. Several of the California organisms will be less hardy than the estuarine organisms tested from the Gulf of Mexico area. The exact details of this research has not been formulated at the present time.

Dr. Gordon suggests there should be consideration of the biological impacts from corrosion of heavy metals from platforms.

Disposition: The dissolution of heavy metals from the legs of drilling platforms, or pipelines, involving iron with lesser amounts of nickel and molybdenum, will occur at an extremely slow rate. Any significant weakening of the structure will require years, if it does occur at all. The amount of heavy metals entering the food chain is believed to be minute at most from this process. There may be a slight concentration in some of the sessile invertebrates attached to the platforms, but the impact on, even this community, should be minor. Also see additions to Section III.D.6.

While there is only fragmentary discussions of population dynamics and other ecological relationships, there apparently is little additional information on these subjects which is specific to the proposed lease area. We say this with a fair degree of confidence with respect to the major biological subjects in the DEIS because of the generally excellent job done by the Southern California Ocean Studies Consortium in the description of these subjects.

Criticism is directed at the lack of impact information on the faunas of the deeper water regions. So far as we have been able to determine, there is no information on the impact of oil on the deep water fauna. Conceivably these organisms may tend to be more stenotypic than shallow water forms and therefore possibly more subject to harm from oil pollution. On the other hand, the deeper water, will afford a greater chance for dilution of the oil. Petroleum hydrocarbons are accumulated in marine organisms, and, though they tend to be eventually depurated, predation of surface organisms or other animals which have accumulated oil could serve as a source for a large accumulation of oil into certain of these potentially sensitive deep sea forms.

According to Battelle Northwest (1970) much of the oil from the Santa Barbara blowout settled in the deep Santa Barbara Channel. The basins are settling sinks for sediments and probably oil. This means that a part of the oil from an oil spill will settle in one of the basins. The diversity and standing crop in the basins is far less than that of the shallower shelves (Hartman, 1960). Because of the sparse distribution and possible greater sensitivity of many of the basin benthos, oil on the bottom here could cause a greater impact on the basin community than a shallower shelf community. Conversely, particularly the inner basins have been receiving oil for hundreds of years from natural oil seeps. Perhaps spills in the inner basins would have less of an impact than on one of the outer basins, not as subject to years of natural oil.

V. Marine Biology by J. T. Enright

Dr. Enright submitted several thoughtful, detailed comments on the impacts of oil spills and formation water on the pelagic populations of the Southern California Bight.

1. Massive Oil Spills

Disposition: We have corrected the error in Section III.C.1.a. concerning concentrations of hydrocarbons inhibiting photosynthesis. The range should be 50 to 100 type µg/l instead of 50 to 100 mg/l.

Dr. Enright emphasizes that predicting effects of a large spill on the plankton populations does not have an adequate foundation of data to make an educated guess. We agree that these impacts are in the unknown category and have tried to present what little evidence is available from the literature. It is amply covered in the text (see especially the Table III-16 in Section III.B.) that there are many variables involved in predicting impacts on marine populations. However, our task includes coming to some reasonable conclusions about various impacts. The statement in the summary of Section III.C.1.a. has been modified to indicate more clearly that the impacts are still unknown.

2. Minor Spills

Disposition: We have qualified the statement about productivity of the plankton and natural seepage.

3. Formation Water

Dr. Enright criticizes Section III.C.1.a. Impacts on the Plankton since it does not treat formation water impacts as an important source of contamination by oil and that no consideration is given for the long-range fate of formation water.

Disposition: We agree that formation water is potentially a chronic, long-range source of pollution into the marine environment and have considered a rough calculation for the amount of oil discharged over the life of the field. This calculation has been revised reflecting new estimates of the amount of formation water and the percentage of formation water produced. See footnote 4 to

Table III-20 and the new estimate in Section III.C.1.b. It must be emphasized that this rough calculation is for the whole Southern California Bight area and would vary from a 20 - 30% cut of formation water produced during the first half of a given well's life to 2 to 3 bbl. of formation water per bbl. of oil produced during the last half of a well's producing life. We have identified formation water more explicitly in the text as a potential long-term source of chronic oil pollution.

Dr. Enright points out that aromatic hydrocarbon components dissolved in formation water could respresent a serious threat to the marine environment and should be identified and measured to determine their concentration in the discharged water.

Dr. Enright criticizes the treatment of the fate of formation water in the text and presents a scenario detailing how an anoxic, high saline layer of formation water with entrained hydrocarbons could cover a layer area of the Southern California Bight with consequent harm to benthic organisms.

A new table has been added in Section III.A. that gives a range of 21.7% to 40.4% for the salts in formation water produced in offshore Southern California. The text has been changed to indicate that some of the produced formation water would trail as a plume while some of the denser, more saline water would sink to the bottom even after dilution processes. We agree that a layering of dense, anoxic, high salinity water at the bottom could have potentially harmful impacts on the benthos. See Section III.C.2. for an added discussion of this impact.

V. Marine Botany by David J. Chapman

Dr. Chapman's comments concern the scientific accuracy and deficiencies of the EIS as well as analysis of biological impacts.

1. Scientific Accuracy

Disposition: Euglenophyta and Chlorophyta were not mentioned as principal constituents of marine phytoplankton, but merely as representatives along with other algae groups. The Cryptophycaeae (cyptomonads) have been added.

We mentioned the limitations of the discussion of phytoplankton in the introductory paragraphs for Section II.E.1. It is pointed out that even the little data is subject to many limitations making it difficult to make quantitative statements about the phytoplankton of the Southern California Bight. We have added the word "qualitative" as suggested to make this even more clear.

Fish kills and oxygen deficient conditions are mentioned in Section II.E.1.d. as the end results of red tides. Incidents are cited for Southern California.

The criticism is made: "A major deficiency of this DES is the failure to distinguish between the qualitative and quantitative and to emphasize the latter. Much of the quantitative data that are available are concerned with very localized, specific instances, e.g., sewage out-falls. Equally important are the type of quantitative data. Species numbers, phytoplankton volume are important indicators, but this report should have mentioned productivity. This is the key quantitative datum and the one most lacking."

Disposition: The above statement is true, but quantitative data is lacking in most cases. Much of the quantitative data collected in the ocean tends to be subject to sampling errors and environmental variability. Patchiness of plankton is a good example. The results of the baseline study should give a somewhat stronger quantitative base.

Physiology of algae in the description section was not intended to be a complete textbook compilation, but rather a summary of the subject.

Dr. Chapman wants us to consider and expound upon the interactions between the OCS oil lease effects and non-OCS lease effects over the next 25 years.

Disposition: Information and data useful in evaluating such interactions will be sought in:

(1) the bench mark and other environmental studies which have been initated by BLM; and (2) if the proposed sale is held, the proposed environmental monitoring program and special environmental studies under consideration. There are too many variables and unknowns to make such predictions at this time, other than ones based upon pure speculation. Refer to Section I.D. of the FEIS for a discussion of environmental baseline studies and the proposed environmental monitoring program.

The statement about iron compounds and red tides in Southern California has been clarified in Section III.C.1.a.

Dr. Chapman indicates that the intertidal productivity measurements near sewage outfalls may not have a relation with the productivity under the influence of oil contamination or a combination of oil and sewage pollution.

Disposition: There was no intent to compare these factors, this was just a summary of the available information in Southern California. See addition to the FEIS concerning extrapolating short term productivity to long term rates in Section II.E.3.c.1.

2. Deficiences in Knowledge

Concerning information on distance separating oil wells, this would depend on the size of oil reserves, depth and distance for slant drilling in cooperation with California Fish and Game to prevent interference with commercial fishing operations. See Section IV.D.1. for a stipulation on structures. The estimated number of wells per area is shown in Section VIII.A.1., Table VIII-1, Estimated Economic and Resource by Area.

Dr. Chapman indicates that the Santa Barbara blowout was not a major spill in terms of volume. This is based upon the USGS estimate of 18,000 bbls. spilled. See addition to scenarios Volume 2, Section III.B.

Regarding time required for oil to reach shore, see the disposition to the comments submitted by Dames and Moore.

Frequencies decreased for drilling accidents after 1968 but did not decline as notably for production accidents. We concur that volume per spill and volume per area are important concerns.

Table III-4 (DES p. 11) is not a long enough record to derive a trend and only attempts to show as is indicated in the text, that "annual fluctuations are quite large". We do not share the view that the DEIS plays a "numbers game" and considers "problems only at the minimal end of the spectrum." Spillage rates were applied to both high and low estimated production figures in deriving barging and tanker spillage volumes (p. 30, Table III-6, DEIS) and high case only was used in the annualized spill summary on p. 38 DEIS covering the maximum expectable losses based on historic loss rates.

Concerning the statement of food chain accumulation, refer to the disposition of comments by Dames and Moore, Section IX.B.5. The summary tables at the end of these sections had previously identified food chain uptake as an unknown but potentially dangerous impact. Section III.D.6 discusses carcinogens in more detail.

We agree with Dr. Chapman's comment that the discussion of brine water impacts emphasizes the ignorance of the state of knowledge of the effects from this discharge. We have estimated that over the life of the proposed development that the amount of formation water discharged would average out as a one to one ratio of the amount of oil produced. In the early stages of well production the amount of formation water recovered could be 20 - 30% of the total oil and water produced and could increase to 2 - 3 bbl. of formation water produced per bbl. of oil produced in the last half of a well's producing life. See Section III.A.1. for an expanded discussion of formation water salt content from existing offshore Southern California wells. Refer to section III.N. of this FES for a discussion of potential cumulative impacts.

The human influences which are potentially more detrimental to bay or estuarine organisms include, but are not limited to, landfill for real estate construction, dredging harbors and channels, and the numerous forms of pollution. For an example of an extreme case of pollution, refer to the various references of Reish and Filice in the Impacts reference list (Section II and III).

The inference is made that we correlate the impacts found in the Gulf of Mexico with what will happen in the Pacific OCS. Throughout the EIS, we indicate the danger of comparing one area with another (see Section III.B. and III.D.6. for example). Certain generalizations do apply in different geographical regions, however. An impact evaluation must consider research with a certain amount of caution from other areas.

With respect to bays, estuaries and marshes, the vast majority of experiences and research has come from the Gulf area. The productivity figures given by Dr. Chapman are unrealistic when discussing the estuaries of the two areas. These are coastal oceanic measurements (we think, since no reference was given) and do not reflect the relative importance of estuaries of the two areas.

Additional reference to Baker's studies on the effects to salt marsh plants have been added to the EIS, Section III.D.1.

Concerning the following statement:

> One could well envisage, from their own statements (2, 120), that estuarine and bay areas could well be permanently destroyed. The DES admits "widespread death and destruction" from a major spill with "biological recovery from one to several years". Their own estimates (and probably minimal) suggest a major spill every 7 to 10 years. This suggests a very good chance of permanent destruction of the biota and effects subsequent to that destruction.

This original estimation refers to the frequency of spills over the whole lease area. The possibility of having the same estuary oil twice is extremely slim. In the case where a geologic hazard is the cause of a spill, the possibility of repeated oiling exists. However, the probability of such a situation existing in close proximity to an estuary is small. Furthermore, the only estuary close to the lease area with an entrance wide enough to have high probability of oil entrance during a spill is Mugu Lagoon. This cuts down the probability even further. If more than one large spill entered Mugu Lagoon within a couple of years, the lagoon could be altered so greatly that it would be essentially destroyed as a productive estuary.

We have tried to point out throughout the text the difference between toxic effects which kill and sublethal effects that also do major damage. The short introductory paragraphs to Section III.C. mention that visual evidence reported by field studies after oil spills is very limited and deficient. We also realize that knowledge of these long-range and sublethal effects is limited and have pointed this out throughout the text. Effects other than direct mortality have been discussed as much as possible in light of current knowledge without resorting to excessive speculation. We have added a further discussion of more recent reports on effects of oil in marine algae and phytoplankton (See Sections III.C.1.a. and III.D.2.).

We agree with Dr. Chapman's statement that the Santa Barbara blowout is the "best we have", not the "best to predict" impacts from future spills. This wording has been changed at the end of Section III.B.

Dr. Chapman's quote from the DEIS concerning oil entering the marine food chain is not complete and does not consider the whole sentence. The full sentence reads: "No evidence was found in the literature that spilled oil enters marine food chains via adsorption or absorption by phytoplankton and subsequent ingestion by grazing herbivores." The remark applies only to phytoplankton, and food chain uptake effects are discussed later in the same section for zooplankton, in Section III.C.1.b. for nekton and in several other impact sections following in Section III.

The sentence in the summary concerning oil spill impacts on plankton populations has been changed to modify the statement. We realize that most attempts at impact predictions in the dynamic marine environment are compounded by many complex variables that are unknown in many cases, but the nature of the task requires us to come to some conclusions.

35-24

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS REGIONAL COOPERATION FOR REGIONAL PROBLEMS
600 SO. COMMONWEALTH AVE. • SUITE 1000 • LOS ANGELES, CA. • 90005 • 213/481-0095

May 12, 1975

Manager
Pacific Outer Continental Shelf Office
Bureau of Land Managment
7763 Federal Building
300 North Los Angeles Street
Los Angeles, California 90012

Dear Sir:

Enclosed is a copy of the testimony given for the Association by Mayor Robert Ward on the Draft Site Spacific EIS for OCS drilling off the coast of Southern California. This testimony was given at your hearing on May 6, 1975. Also enclosed is a copy of further comments of the Association on some of specifics contained in the Draft Environmental Statement. We wish to enter these into the record as well as our oral testimony.

We hope that you will find these comments usefull and that you will continue to incorporate local agency and regional concerns into the finalization of the offshore leasing program. If you have any questions or comments, please feel free to contact Brian Farris of the SCAG staff at any time.

Very truly yours,

James A. Hayes

James A. Hayes
President

JAH:BF:em

Encls.

COMMENTS OF THE SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS ON DRAFT SITE SPECIFIC EIS FOR OCS LEASE SALE #35. GIVEN IN ADDITION TO ORAL TESTIMONY AT PUBLIC HEARING, LOS ANGELES, MAY 1975

The Association feels that the leasing of offshore oil tracts is a major way of fulfilling the great national need for increased and reliable sources of energy, especially for petroleum products. We wish to stress that offshore oil leasing is but one of a number of ways of fulfilling the nations energy needs. We feel that the development and utilization of other energy sources should continue apace with the utilization of offshore oil. The oil bearing strata off the coast of Southern California are an assest held in common by the American people. Therefore, in reviewing this draft Environmental Impact Statement we need to see the larger picture fitting this program into a nationwide system of priorities.

The text of the Environmental Impact Statement seems to be very extensive and complete in many respects. Scientific data cited seems very impressive, however we have no way of verifing the data or expanding upon it. The EIS does offer some alternatives, but they are not very complete and not all combinations are considered. The Environmental Impact Statement does have some generalized maps which were quite useful.

Physical-Social Impacts

① Oil spills would seem to have the greatest potential adverse impact on the regions' marine environment. There are a number of other types of pollutants discussed in the Environmental Statement, but oil spills is of greatest concern to the Association. A major spill could have widespread lethal effects on the marine and bird life, depending on the exact conditions of the spill. It could have even greater effects if the spill were to interfere with life processes in areas of special biological significance and/or affect rare endangered species. The Association is very concerned about the sub-lethal effects of the continuous minor spills that would take place during the life of the oil field. The EIS states that these may have potentially the greatest effects on the environment, yet there is no quantification of what these effects might be, or even if they actually exist. We find it very disturbing that a lease sale should be proposed and pursued with this lack of knowledge. We fear that if sub-lethal effects are very major indeed, they might not be known until widespread damage has been done and many millions of dollars have been committed.

We feel that a great deal of further research into the entire area of effects of oil spills on the environment should be done. We agree with the statement in the Environmental Impact document that no research is ever really complete and no oil extraction system is entirely fail safe. However, more work should be done in this area prior to lease offerings.

② A strong esthetic impact would take place in the marine environment if the oil fields were developed to maximum potential. The Association feels that the esthetic effects of large numbers of towers, especially in the defined critical esthetic impact area, would not be tolerable. We feel that maximum use of sub-sea completions and pipeline for transport of crude product should be utilized in these areas. ③ The effects on onshore land uses are of great concern to the Association. Those of greatest concern are the effects of the proposals on land use planning and implementation, on air and water quality, on recreation, and on fish and wildlife. The Association feels that the potential effects on land use planning and local government land use decision making could be considerable if this lease area were developed to its fullest extent. This plan would entail the establishment of refineries, terminal and pipelines affecting the land use of the coastal cities and counties. In addition a number of these facilities, such as refineries, could be located inland and would effect the planning programs of the inland cities. To date these communities have not incorporated massive oil development in their planning processes and this could require changes in their plans to properly accommodate the potential changes of the land uses. In addition, the majority of the region's population is located in the South Coast Air Basin which is currently experiencing massive overloads in air pollution. The addition of oil production equipment and refinery capacity would increase the number of pollutants going into the air by a significant amount. The Environmental Impact report states that such a load would increase less than 1%. However, since this region already greatly exceeds federal and state air quality standards, any increase would be intolerable. ④

⑤ Water quality may become more degraded with the establishment of oil terminal and refinery facilities. Degradation can result from spills at the facilities and from storm runoff. Such increased degradation in water quality could not be tolerated.

⑥ We feel that the coastal plan being done by the State Coastline Commission pursuant to Proposition 5 and to the Federal Coastal Zone Management Act will be a significant development in the planning and proper use of this vital national resource. The lease sale is scheduled to take place well in advance of the completion and approval of the coastline plan. If this lease sale were to take place as scheduled it could have a major adverse effect on the coastal planning process. This could result in the waste and negation of a great deal of the coastal commissions' work and a taking of the state and local perogatives to plan for the coast free of the impinging federal pressures. It could also run counter to established federal policy under the Coastal Zone Management Act.

⑦ This region once had a number of coastal estuaries which now have been almost totally destroyed. There are only two that now exist to a near natural state and a few others which are very highly modified. Estuaries are well known to be significant biological areas vital to the marine ecology. The Environmental Impact Statement discusses pipeline crossings and the potential effects of oil spills on these estuaries. We feel that any negative effect on the coastal estuaries cannot be allowed given their uniqueness and importance.

⑧ The effects of oil field development on recreation, and especially the effects of the major spills, cannot be overestimated. The Southern California coastline is a national recreation resource. It is the only area on the west coast where there is extensive water contact use of the beach and it draws tourists from all the western United States. The esthetic impact of offshore oil drilling, combined with the continual low level spills predicted, could have the effect of lessening the desirability of beach use for the region's residents and visitors. It could also decrease the ecological health of beaches. In addition, the impact of a major spill would be very considerable both in direct loss of recreation and in indirect effects which can linger on for years. These effects could cause a major blow to the region's recreation and tourist industries.

Policy Making Effects

⑨ The lease sale proposal raises a number of issues in need of resolution. A primary issue is one of coordination between the federal government, state government, the regional agency and local government There is a major question of who has the lead in coastal and offshore resource issues. Local governmental agencies, such as cities and counties, have primary control of land use to the tide line and nominal control of uses beyond the tide line. The state government has control of the tide lands to the three mile limit. These areas are also under the general planning

⑨ purview of regional agencies such as SCAG. The Federal Government has sole control of OCS lands beyond the three mile limit. However, many actions in any one of these areas could have major effects on the contiguous areas. Since there is a fragmentation of responsibility and control, it seems vital that all the concerned agencies work together closely. It does not seem that this has been accomplished very well on the offshore oil lease proposals, since the federal government continues to move ahead with its original leasing schedule despite great opposition from the local agencies. The federal government purports to be very interested in local government input. However, substantial results of the input given to the federal government are not yet evident. We remain very much concerned about the degree of attention given to state and local input in federal decision making process. We are also concerned that there is no formal mechanism for the various levels of government to participate in the decision making processes.

⑩ A formal federal energy policy has not yet been established. It seems that major decisions on the utilization of offshore oil resources should be a major component in an energy policy to ensure the most efficient utilization of time and resources. We do not know what the national priorities are for energy conservation and production. It is therefore very difficult to evaluate this proposal in light of larger considerations.

We are very much concerned with the current committment of non-renewable resources such as offshore oil in the light of possible future consequences. Should offshore oil resources be developed to their maximum extent at this time means that these resources will be depleted at faster rate and will be used up in the not distant future. We fear that given the lack of national energy policy, these resources may be utilized without concurrent development of alternative energy sources and conservation programs. This may result in a final depletion of easily accessable oil resources within the next 20 to 50 years and and in a greatly enlarged energy crisis at that time. Therefore, we feel that it is incumbent upon all levels of government to fully cooperate in the development of an energy policy which can provide for sufficent energy production within environmental safeguards for the indefinite future.

⑪ The considerations given in the Environmental Impact Statement to unavoidable adverse effects and short and long term uses are extremely brief and general. This EIS appears to be over-written from a technical standpoint with great reliance on scientific jargon, while summary statements, statements of policy, and statements of great concern to local agencies are too brief, too general and hard to find.

⑫ The following policy statements were adopted by the Association's Executive Committee January 9, 1975. They have included in our testimony at Beverly Hills and at Los Angeles, California. They here included again for your information, because they are very germane to this proposed lease sale.

1. SCAG urges designation of the outer continental shelf in Southern California as a national preserve which would only be used for oil exploration and extraction in the event of a national emergency declared by Congress.

2. SCAG strongly opposes the award of offshore leases until:

   a. A comprehensive national, as well as regional, energy policy has been promulgated.

   b. The California Coastal Zone Conservation Commission and other appropriate state, regional and local agencies have reviewed the U.S. Interior Department's proposed oil development program.

c. Congress has enacted new legislation strengthening existing laws relating to drilling and development on the outer continental shelf.

d. Enactment of congressional legislation requiring offshore drilling regulations to be at least as stringent on environmental considerations as those currently in effect in California or other coastal states.

3. Association policy also declares that any new federal regulations should not preclude California or the other states from adopting stronger offshore drilling regulations in the future or preempt existing stronger state rules.

4. The federal government should more closely involve state and local governments in every stage of the decision making process on energy policy and offshore oil drilling.

5. Further evaluation by independent experts should be conducted on the environmental impacts of offshore drilling so that the full effects can be known and proper environmental safeguards can be designed.

6. If oil resources development on the outer continental shelf is to be allowed then the following should apply:

⑫ a. The federal government should reevaluate the presidential mandate directing the rapid leasing of the outer continental shelf for exploration in the light of energy policy and delay the local leasing decisions until offshore oil drilling is fully evaluated as part of an energy resources development program.

b. Sites offering the best prospects for oil recovery and least sensitivity to environmental disruption should be developed first. Consideration should be given requiring that successfuly bidding companies develop high and low yield sites simultaneously to maintain a continuous availability of high yield sites over time, along with sufficient oil production. Consideration should also be given to the feasibility requiring secondary and tertiary extraction to fully utilize the resource. At the time of extraction, monitoring and management of oil leases shall consider maximum utilization of oil resources consistent with social, environmental and economic parameters.

c. All leasing decisions should be made in conformance with local general plans and with local consultation to ensure minimum conflict and proper consideration of socio-economic and land use effects as well as esthetic considerations along with sufficient refinery and pipeline capacities.

d. All leasing decisions and subsequent development of pipeline and refinery facilities should incorporate the strictest measures to prevent any deterioration of the region's air quality.

e. On all tracts, site-specific stipulations should be made to protect the natural environment and for esthetic considerations.

f. The federal government should consider doing exploratory drilling itself before selling leases to private industry. This could lead to more efficient leasing processes.

g. Significant portions of the oil bearing strata should be held as natural resources and not developed unless future emergencies require.

In addition to the above policy statements, SCAG endorses resolutions passed by the City of Los Angeles, the Statewide Policy of the League of California Cities and the resolution of the Orange County Division of the League of California Cities concerning offshore oil leasing. The Association also supports efforts by the City of Los Angeles and other local agencies in securing the necessary time and funds to provide for a comprehensive review on the draft site specific EIS on OCS leasing subsequent to release of the programmatic FEIS.

Recommendations on Proposed Alternatives

The Association feels that a combination of the alternatives proposed in the EIS would provide a useful means of dealing with the proposed lease sale. We feel that Alternative C, delaying the sale, should be implemented until all the conditions given in the alternative are met. We also feel that consideration should be given to Alternative D, especially since there is not enough equipment to simultaneously develop all proposed tracts throughout the nation. Those with a higher priority than Southern California should be developed first. We feel that Alternative E, federal government exploration, is very desirable and should be implemented. A Federal lease sale could be held in a modified form, as in Alternative A, with subalternatives 1 and 2 for deletion of tracts and subsea production systems incorporated into the terms. Finally, under Alernative B, we feel that a combination of energy alternatives is one which would provide the best form of energy conservation and production program to be included as part of any series of lease sales.

We do not feel that the sale should be delayed or withdrawn strictly because of parocial interests. We feel that national interest could very well be served by leasing off of Southern California. We feel very strongly that it should be done in a proper and coherent manner, fully considering the unique aspects of the Southern California continental borderland.

b. Southern California Association of Governments (SCAG)

The comments received from the Southern California Association of Governments were directed towards:

1. Physical-Social Impacts, and
2. Policy Making Effects

Disposition

Physical-Social Impacts

In this section of the comments, questions were directed towards the biological, visual, land use, water quality, estuaries, and recreation sections of the DEIS, and coordination with the Coastal Plan.

(1) The impacts of oil spills on the marine environment have been thoroughly discussed based on the latest knowledge available in Section III. Section III.A. has been revised and presents additional estimates of amount and rates of oil spillage for the proposed lease area. It is impossible to quantify the sublethal effects of chronic low-level spillage beyond what has been covered in the text. Little is known of these effects and many complex variables are involved. See Table III-11 in Section III.B. for a list of the many variables affecting oil spill analysis. We have proposed measures to protect Areas of Special Biological Significance as well as areas that are habitats for rare and endangered species. See Section IV.E.4.a. for the expanded list of Special Stipulations and Section VIII.A. for proposed alternatives. The proximity evaluation is an attempt to highlight critical resource areas affected by oil spills. Areas of Special

Biological Significance and other environmentally sensitive areas have received ratings of relatively High Hazard Potential. See Sections III.K.-M. and the added Graphic 15.

(2) The comments indicate that the visual impact would be negative because of the large number of platforms which would be constructed. The proposal for fourteen to sixty platforms for 1.55 million acres does not suggest a high density ratio. For example, from a point such as Palos Verdes, from 9-34 platforms might be visible, and 6-22 of these may be highly visible. A special stipulation is proposed that would bear on the density ratio. See Section IV.E.4.a. Refer also to Section VIII.A. for a proposed alternative to require subsea completions for nearshore tracts.

(3) The onshore land requirements are estimated to be two hundred acres for facilities located in Ventura County around the Oxnard area assuming availability of land. Such facilities would probably include separation tanks, terminal/storage facilities and support/supply staging areas. In terms of population centers, these facilities will be located away from the majority of the people. The facilities necessarily will be located in areas zoned for industrial uses and sited in conformance with local governmental regulations.

(4) It is agreed that the DEIS did not adequately describe the air quality impact onshore. The topic has been substantially enlarged in the final EIS and addresses the question of added air quality deterioration. See response to comments of the Resources Agency of California and also Section III.F.1. of this FEIS.

(5) The question of water quality impacts for oil terminals has been considered in Section III.F.2.

(6) Refer to response to comment 2 of the Resources Agency of California.

(7) In response to the comments on estuaries, we have proposed special stipulations to protect these critical areas from oil spills and pipeline construction, see Section IV.E.4.a. Also refer to Section VIII.A. for proposed alternatives designed to protect Areas of Special Biological Significance.

(8) For a discussion of impacts anticipated from the proposed sale on the recreation resources of California's coast and related tourism industries, please refer to Section III.I.1. and 2.

Policy Making Effects

(9) The question of coordination with local governmental bodies has been discussed in response to comment 3 in reply to the Environmental Protection Agency. The comments point out that every effort for local input was extended to local government, but not all agencies chose to respond. See Section IX.A. for a list of agencies and organizations contacted. This EIS process and the OCS Research Advisory Board are also examples of the Department's continuing efforts at coordination.

(10) The question of the relationship of the EIS to a national policy for energy development has been answered in response to

comments raised by the Comprehensive Planning Organization of the San Diego Region. See Disposition two in answer to their comments.

(11) We have revised and added to several of the Unavoidable Adverse Impacts, Section V. Section VII. has been expanded to include a more thorough analysis of short-term use and long-term productivity. Refer also to Section VI.and III. N.

(12) In response to the six policy statements adopted by SCAG on January 9, 1975, the first group is directed towards national policy and is not addressed in the present EIS. Neither the draft nor the final impact statement makes a systematic analysis of how national energy requirements are estimated or on what assumptions Government energy policy is to be based. The focus of an impact statement as explained by the CEQ Guidelines (*Federal Register* August 1, 1973) leads us to conclude that issues of the above nature are beyond the scope of our environmental assessment. The final OCS programmatic EIS should be consulted. A number of the policy issues recommended by the SCAG are addressed in that EIS, especially their item No's. 2, 4, 6a, 66, 6f and 6g. All of the remaining policy items are addressed in this EIS except for item No's. 1 and 3. Item No. 1 would require an act of Congress and is not within our existing authority to prescribe. With respect to item No. 3, all federal regulations on the OCS apply to federally owned or administered areas and it would not be our intention or within our authority to presceibe new federal regulations that would preclude California or other states from adopting stronger offshore drilling regulations in the future or preempt existing stronger state rules.

Policy statement five indicates that an independent group of scientists should study the proposed project in order to protect the environment. A baseline study will be conducted prior to any offshore development and a monitoring program will be established in order to assure that the marine environment will not be damaged.

35-29

ENVIRONMENTAL IMPROVEMENT AGENCY

County of San Bernardino

316 Mt. View · San Bernardino CA 92415 · (714) 383-1718

ROBERT B. RIGNEY, Administrator
Environmental Improvement Agency

May 19, 1975

Pacific OCS Office
Bureau of Land Management
RM. 7663 Federal Building
300 N. Los Angeles Street
Los Angeles, CA 90012

RE: Comments on Draft EIS - "Proposed 1975 Outer Continental Shelf Oil and Gas General Lease Sale Offshore Southern Calfornia" (OCS Sale #35)

Manager:

In February of this year, the San Bernardino County Environmental Improvement Agency submitted comments on the national program Draft OCS Environmental Impact Statement requesting further analysis of potential indirect impacts on inland areas of Southern California.

After reviewing the site-specific (Southern California) Draft EIS, we feel the same issues still need additional review and, therefore, request that our enclosed comments on the program EIS be made a part of the hearing record for the site-specific EIS.

In addition, we suggest that any hearing or decision of the site-specific EIS or on the project itself be delayed until the national program EIS has run the full course of the environmental and decision-making processes. Although the national and Southern California OCS leasing projects are rightfully covered by separate EISs, they are definitely inter-related and thus the national program should be fully analyzed and, if necessary, revised, before a regional lease sale is considered.

We also request that the findings of the Ford Foundation's Energy Policy Project Report ("A Time to Choose") be incorporated into the "Alternatives to the Proposed Action" chapter.

ROBERT A. COVINGTON
County Administrative Officer

Board of Supervisors
DENNIS HANSBERGER ....Third District
Chairman
DANIEL D. MIKESELL ....Second District
Vice-Chairman
JAMES L. MAYFIELD ....First District
ROBERT O. TOWNSEND ..Fourth District
NANCY E. SMITH ....Fifth District

In summary, the final site-specific EIS should include all potential, direct or indirect air quality and land-use related impacts that might affect San Bernardino County.

ENVIRONMENTAL IMPROVEMENT AGENCY

Robert B. Rigney

Robert B. Rigney
Administrator

CB:RBR;th

cc: Dennis Hansberger, Chairman, Board of Supervisors, Third District

enc: 1

ENVIRONMENTAL IMPROVEMENT AGENCY
County of San Bernardino
316 Mt. View · San Bernardino CA 92415 · (714) 383-1718
ROBERT B. RIGNEY, Administrator
Environmental Improvement Agency

February 18, 1975

Department of the Interior
Bureau of Land Management
Director 732
Washington, D.C. 20240

RE: Comments on Draft Environmental Impact Statement - "Proposed Increase in Acreage to be Offered for Oil and Gas Leasing on the Outer Continental Shelf (OCS)"

Dear Sirs:

The Environmental Improvement Agency of San Bernardino County is primarily concerned about the secondary effects of OCS drilling; namely, air pollution created by a potential increase in refining activity, potential oil pipeline corridors and storage facilities, all of which we feel have not been adequately analyzed by the BLM's E.I.S.

① Our southeastern California County is in a unique geographical position relative to the heavily populated regions of southern California. The ambient air quality of the South Coast Air Basin portion of the County exceeds federal and state oxidant standards mainly due to migrating pollutants from the west and southwest. The Southeast Desert Air Basin portion of the County is also suffering increased oxident intrusions, from the South Coast Air Basin, as evidenced by records from our Air Pollution Control District monitoring station in Victorville. Any increase in emissions in the South Coast Air Basin will be detrimental to the improvement of our air quality, even to federal or state standards. Present SO2 ambient levels are low, but an increase in refining activity could potentially create yet another air quality health hazard.

② We are aware of at least five new major electrical transmission systems and one major natural gas pipeline proposed to originate in and/or traverse the County. Oil pipeline corridors passing through the County from coastal refineries and/or pumping stations to the eastern market will make an additional demand on our already over-taxed rights-of-way.

In light of the potential increase in air pollution and in transport needs that might affect San Bernardino County, we recommend the following:

Board of Supervisors
DENNIS HANSBERGER .... Third District
Chairman
DANIEL D. MIKESELL .... Second District
Vice-Chairman
JAMES L. MAYFIELD .... First District
ROBERT O. TOWNSEND .. Fourth District
NANCY E. SMITH .... Fifth District
ROBERT A. COVINGTON
County Administrative Officer

① 1. The OCS E.I.S. should include an in-depth analysis of indirect air quality impacts resulting from the very real possibility of increased refining activity. The emissions would add to the cumulative air resource degradation affecting all of southern California. The E.I.S. should include the impact of hindering the attainment of federal and state air quality standards in the South Coast Air Basin and the impact on the court-ordered federal goal of preventing our clean air areas from deterioration to those same standards. The E.I.S. should address the possible attempt to place refineries in the California Desert in order to utilize its relatively clean air if such additional emissions will not be allowed in the coastal or basin areas. Air quality considerations in the final OCS E.I.S. and in any other E.I.S. on actual site development should involve the Environmental Improvement Agency; especially the San Bernardino County Air Pollution Control District or any regional A.P.C.D. that might subsequently be established.

② 2. The County Environmental Improvement Agency is the primary County body authorized to deal with such issues. We request involvement in any environmental review or planning process in dealing with the consideration of, or actual preparation for, oil pipeline rights-of-way proposed to traverse our boundaries. Our input should be requested on a preliminary basis in order to better assess future impacts. We have recently begun our Joint Utility Management Program which involves such corridor planning. Communication to the County should be addressed:

Robert B. Rigney, Administrator
Environmental Improvement Agency
316 Mt. View Avenue
San Bernardino, CA 92315

In addition, we believe the final OCS E.I.S. should expand the following topics:

③

1. Increased OCS drilling as a factor in the national energy program.
2. Changes in demand due to existing conservation measures.
3. Accelerated conservation and energy efficiency controls as the cheapest and quickest methods of alleviating shortages.
4. The effect of increased future supplies from Alaskan oil fields.
5. Increased recovery in existing fields.
6. Quicker implementation of alternate energy sources which we will have to utilize in the future anyway.
7. Impacts on local government.

③

8. All direct and indirect impacts, as mandated by the National Environmental Policy Act.

9. For future use, the BLM should begin a cost/benefit analysis of the over-all energy and resource efficiency of transporting crude oil vs. refined oil derivatives via pipeline.

We wish to work with the BLM or any other lead agency in assessing the various indirect OCS leasing and drilling impacts that affect our area of jurisdiction.

ENVIRONMENTAL IMPROVEMENT AGENCY

Robert B. Rigney

Robert B. Rigney
Administrator

CHB:RBR:th

cc: Chairman, Board of Supervisors

c. Environmental Improvement Agency, County of San Bernardino

The following comments were received from the County of San Bernardino:

(1) The need to analyze the onshore impact on the air quality from offshore activities.

(2) The need for consultation with the County Environmental Improvement Agency in the planning and review of pipeline construction within their area of jurisdiction.

(3) Comments on various energy alternatives.

Disposition

(1) It is agreed that the DEIS did not adequately consider the onshore impacts on air quality resulting from offshore activities. In addition, the DEIS did not discuss infrastructure impacts on air quality in San Bernardino County because of the great distance from the coast. The air quality section in Section IV.F. has been expanded significantly to the question raised. For additional comment, refer to Disposition Number one in the response to comments to The Resources Agency of California.

(2) The DEIS under consideration is concerned with the leasing of offshore sites for mineral production and not onshore pipeline construction unless directly related to this sale. Although

the BLM's permit authority ends at the 3 mile limit offshore, we will make every effort to coordinate with San Bernardino County and any other appropriate State and local authorities concerning proposed pipelines.

3. Section VIII.B., Energy alternatives, has been revised and expanded to include a more detailed analysis of alternative energy sources.

35-26

COUNTY OF ORANGE

ENVIRONMENTAL MANAGEMENT AGENCY
811 NORTH BROADWAY
SANTA ANA, CALIFORNIA

TELEPHONE: 834-5678
AREA CODE 714

MAILING ADDRESS:
P.O. BOX 4048
SANTA ANA, CALIFORNIA 92702

H. G. OSBORNE
DIRECTOR

FILE

21 May 1975

Manager, Pacific OCS Office
Bureau of Land Management
Room 7663, Federal Building
300 N. Los Angeles Street
Los Angeles, CA 90012

Dear Sir:

The County of Orange respectfully submits for your consideration our comments regarding the Draft EIS for the proposed OCS Oil and Gas Lease Sale. We are greatly concerned with this proposal and wish assurance that lease sales will only be contracted after thorough environmental and economic review and analysis. The concerns detailed in this letter should be considered in conjunction with the oral testimony provided by Mr. Richard Munsell of Orange County at the May 7, 1975 public hearing. We hope that our concerns will be taken into account during the finalization of this Draft EIS, and incorporated into the project itself.

Our primary concerns about the Draft EIS involve the full disclosure and analysis, as mandated by NEPA, of potential environmental impacts, mitigation measures to be incorporated into the project, and possible alternatives to the proposed project. While the environmental background information provided in the first volume is thorough and well documented, the potential impacts of the proposed program are understated. Discussion of potential onshore impacts resulting from increased oil extraction activity on the California Coast is ① very limited. Secondary impacts of this project, such as increased air pollution, traffic and reduced public utilization of shoreline areas as a result of expanded refinery capacities, pipeline landfalls, barge and derrick construction yards and maintenance and supply facilities, must be explored more fully in the Environmental Impact Statement. Demographic and socio-economic ② impacts of the provision of 15,000 relatively short-term jobs must be more carefully documented. The discussion of impacts on recreational facilities ③ and the aesthetic value of the ocean and shoreline is subjective and treats very serious economic and environmental concerns much too lightly.

④ The Mitigation Measures section is inadequate to show how the project will be implemented in a manner which will minimize predictable environmental impacts. Many of the proposed mitigation measures simply state what will not be done in OCS areas. ⑤ Detailed analysis of the available oil spill preventative and cleanup equipment must be presented, as well as guarantees that such equipment will be actually utilized. Subsea production systems should be used whenever feasible to minimize aesthetic impacts and interference with shipping and fishing. Six mile buffer distances should be employed to protect biologically, recreationally, and aesthetically significant areas from degradation as stated in Alternative 1 of the Draft EIS.

The Orange County Board of Supervisors, in two resolutions passed February 4, 1975 have suggested the addition of the following mitigation measures:

⑥
1. "Offshore oil and gas development should not proceed until a comprehensive national energy policy is adopted.*
2. "This national energy policy should include evaluation of various alternative energy sources and assessment of environmental impacts of various alternative methods of achieving a national energy policy.*

⑦
3. "The Department of the Interior should coordinate its efforts with the California State Coastal Zone Conservation Commission and other affected State and regional agencies.*

⑧
4. "Offshore oil and gas drilling should be deferred until the "state-of-the-art" is such that submerged operations or such other aesthetically acceptable operations are possible.*

⑨
5. "In the event that the Department of the Interior should grant offshore oil and gas drilling lesses, all lessees shall be held to a standard of "strict liability."*

⑩
6. "...In the event oil and gas development occurs off the coast of Orange County, the County of Orange shall receive a royality of 3 1/3% to be used solely at the discretion of the Orange County Board of Supervisors for the purpose of mass-rapid transit."**

Several of the alternatives proposed in the Draft EIS are not truly alternatives to the project, but potential mitigation measures which should be incorporated into any offshore oil extraction operation. Such possibilities as subsea production systems and increased buffer distances are highly desirable, but do not represent alternatives to the project as proposed. The "No Project" alternative must be expanded to include the possibility of mandatory energy conservation practices as a substitute for increased oil production, as well as the development of other potentially viable energy resources. The "Delay Sale" alternative is highly desirable, and should be more fully explored environmentally and economically. The alternative of production in other OCS areas must be more fully explored to show the reasons for the expansion of all extraction operations on the southern California OCS before such expansion in other OCS areas.

---

* Orange County Board of Supervisors - Resolution 75-167 (attached)
** Orange County Board of Supervisors - Resolution 75-168 (attached)

Thank you for the opportunity to comment on the Draft EIS and the proposed project. Again, we sincerely hope that our concerns will be seriously considered in the final decision on this project and incorporated into the Final EIS. We trust that your office will continue to keep us informed about the expansion of oil extraction operations on the southern California OCS, to assist our planning for the future of the Orange County coastline.

Very truly yours,

ENVIRONMENTAL MANAGEMENT AGENCY

H. G. Osborne, Director

HGO:BM:jmc

d. County of Orange Environmental Management Agency

The County of Orange Environmental Management Agency submitted several comments which are summarised below. Also attached to the comments but not printed with the comments, were two resolutions approved by the County Board of Supervisors that supported the comments made.

(1) The need to expand the secondary impacts on the community infrastructure.

(2) The need to clarify the demographic and socio-economic impacts resulting in new oil related employment.

(3) The need to discuss the impacts on recreational facilities and the aesthetic value of the ocean and shoreline.

(4) The need to enlarge on the section dealing with mitigating measures.

(5) The need to further address the question of oil spills.

(6) The need to relate the OCS program with a national energy policy.

(7) The need to coordinate efforts with the California Coastal Zone Conservation

Commission and other governmental agencies.

(8) The need to expand the text relating to submerged operations.

(9) The need for a "strict liability" standard for lessees.

(10) Royalty payments of 3-1/3% to the County of Orange for the purpose of mass rapid transit.

Disposition

(1) We have revised substantially the secondary impacts on air quality in Section III.F.1. See Disposition one relating to the comments by the Resources Agency of California. For reference to other impacts, see the response to the Southern California Council of Local Governments regarding the industrial and community infrastructures.

(2) Comment number two is addressed throughout the text, but particular impacts can be found in Section III.J.

(3) Refer to Sections III., I.1-3. and V. in reference to impacts on recreation and aesthetics.

(4) See Section IV. and Section VIII.A. of the final EIS. These sections have been expanded to include special stipulations, new alternatives, added items on oil cleanup, and an enlargement of the discussion of subsea technology.

(5) Section IV.E. for a proposed stipulation concerning spill containment, and Section VIII.A.5 for discussion of an alternative to protect aesthetic values. The question of oil spills has been treated in the Final EIS in greater detail in Section III.A.

(6) For expressing the need of relating the OCS program to a national energy policy, see response to comment one of the comments by the Comprehensive Planning Organization of the San Diego Region, and the Project Independence Report, Oil: Possible Levels of Future Production. The Project Independence report demonstrates the need for OCS in reaching energy self sufficiency. Included in the plan is the role of the California OCS.

(7) Comment number seven above states a greater coordination program must be established with other levels of government. For a respons refer to response to comment 2 of the Resources Agency of California.

(8) In response to comment number eight above, see enlarged text found in Sections I.G. and III.A.1.h. of the final EIS. This section has been substantially revised to consider the latest technology of the subsea systems.

(9) Under the authority to prescribe regulations to carry out the leasing requirements of the OCS Lands Act for the prevention of waste and conservation of the natural resources of the Outer Continental Shelf regulations have been promulgated establishing bonding requirements for lessees, 43 CFR 3304.1, 3304.2, and liability

for oil spills resulting from operations, 30 CFR 250.43. The lessee is required to bear the expense for the control and total removal of pollutants proximately resulting from drilling or production operations conducted by or on his behalf. 30 CFR § 250.43(b).

(10) The OCS Lands Act makes no provision for royalty payments to anyone other than the United States. This proposal would require Congressional action.

35-15

COMPREHENSIVE PLANNING ORGANIZATION OF THE SAN DIEGO REGION

cpo

SUITE 524
SECURITY PACIFIC PLAZA
1200 THIRD AVENUE
SAN DIEGO, CALIF. 92101
(714) 233-5211

May 14, 1975

U. S. Dept. of Interior
Bureau of Land Management
Pacific OCS Office
300 N. Los Angeles Street
7663 Federal Building
Los Angeles, CA 90012

Subject: Draft EIS - Southern California Outer Continental Shelf Oil and Gas Leases, 1975.

Gentlemen:

The above Draft EIS has been received by the San Diego Comprehensive Planning Organization as provided for in the A-95 review procedures adopted by the CPO Board of Directors.

The CPO Board of Directors, on May 12, 1975, passed a resolution making the following recommendations as input to the Draft EIS on Southern California OCS gas and oil leasing:

① In view of the probable adverse environmental impacts associated with proposed action as identified in the Draft EIS, no leases should be made until the precise need for Southern California OCS oil and gas has been identified in the context of comprehensive national energy, environmental and development policies and programs.

Once this need has been identified the number and location of tract leases should be determined with primary regard to serious long term environmental and economic consequences, as well as to the predicted availability of oil and gas resources and costs of extraction and production. These decisions should involve the elected officials and staffs of Southern California local governments.

Also in compliance with the above-stated procedures, a copy of the CPO staff report is enclosed along with the resolution.

Sincerely,

RICHARD J. HUFF
Secretary

RJH:j
Enclosures

MEMBER AGENCIES: Cities of Carlsbad, Chula Vista, Coronado, Del Mar, El Cajon, Escondido, Imperial Beach, La Mesa, National City, Oceanside, San Diego, San Marcos, Vista, and County of San Diego / *EX-OFFICIO MEMBER:* California Department of Transportation / *HONORARY MEMBER:* Tijuana, B. CFA.

Project Applications

Item No.: A-28

Date 5/12/75

TO: Board of Directors

FROM: Executive Director

SUBJECT: 1975 Outer Continental Shelf Oil and Gas Leases for Southern California (Draft EIS)/Department of Interior

Introduction

The U.S. Department of the Interior has submitted a Draft Environmental Impact Statement (EIS) on its proposal to lease 1.55 million acres on the Outer Continental Shelf (OCS) for oil and gas exploration and development in 1975. 297 separate tracts located in 5 distinct areas are proposed to be released for bids. The Draft EIS is being reviewed by CPO pursuant to the National Environmental Policy Act of 1969.

The Board reviewed a Draft EIS on the proposed Nationwide Oil and Gas Leasing Program at its February 1975 meeting and passed a resolution forwarding comments to the Department of the Interior. The present EIS is a specific refinement of the national EIS which details the environmental impacts of leasing and developing the tracts off shore Southern California. Based on staff review and coordination it is my

RECOMMENDATION

that the Board of Directors of CPO make the following recommendations as input to the Draft EIS on Southern California OCS gas and oil leasing and that a resolution to this effect be forwarded to the U.S. Department of the Interior.

In view of the probable adverse environmental impacts associated with proposed action as identified in the Draft EIS, no leases should be made until the precise need for Southern California OCS oil and gas has been identified in the context of comprehensive national energy, environmental and development policies and programs.

Once this need has been identified the number and location of tract leases should be determined with primary regard to serious long term environmental and economic consequences, as well as to the predicted availability of oil and gas resources and costs of extraction and production. These decisions should involve the elected officials and staffs of Southern California local governments.

Discussion

① 1. The present Southern California Draft EIS, like the National Draft EIS reviewed previously, does not discuss the need for the proposed leases in the context of a comprehensive national energy policy. Research by the Los Angeles City Attorney's office in reviewing the Draft EIS indicates major national energy documents such as "Project Independence Blueprint" does not support the need for OCS development off Southern California. Therefore, the Department of Interior's environmental documents should address this as a basic issue.

② 2. While precise estimates of the impacts of the proposed leasing program are not possible because of the uncertainty of productivity of the tracts, ranges of activity and probabilities for environmental damage are provided in the Draft EIS as summarized below assuming the worst case (sale, exploration and development of all tracts):

Total number of wells	1,130 - 5,455
Miles of Pipeline Corridor	450 - 900
Tanker Fleet	8 - 35
Peak annual employment (1985-90)	3,000 - 15,000
Estimated annual oil leakage and minor spills	80,595 barrels

③ Major oil spill probabilities developed by the Council on Environmental Quality which are presented in the Draft EIS indicate that for large off shore oil fields there is a 95% chance of a spill of over 1,000 barrels (4200 gallons) over the life of the project. Up to 60% of the recoverable oil and gas resources projected for Southern California leases are in the "shallow water" areas just past the 3 mile limit of state control known as Santa Monica and San Pedro Basins. These lease areas extend from Ventura County South to Camp Pendleton. These areas are expected by the Department of the Interior to be the first to develop. There is considerable scientific controversy presented in the Draft EIS concerning the impacts on marine biological communities of continual low level oil contamination as well as major oil spills.

③ Due to the uniqueness and biological productivity of San Diego's coastal marshes and lagoons and economic importance of the shore line to the region's tourist and recreation industries, it is essential that these controversies be further resolved. One way to accomplish this is through a review of the Draft EIS by a major independent scientific group. The present EIS timetable does not allow for such a review. In addition, the experience and expertise of local governments should be solicited by the Department of the Interior in determining the on-shore impacts of jobs created and the economic effect of production storage and transportation facilities that will be needed.

Richard J Huff

RICHARD J. HUFF
Executive Director

COMPREHENSIVE PLANNING ORGANIZATION OF THE SAN DIEGO REGION

SUITE 524
SECURITY PACIFIC PLAZA
1200 THIRD AVENUE
SAN DIEGO, CALIF. 92101
(714) 233-5211

RESOLUTION #75-42 ADOPTED ON May 12, 1975

RECOMMENDATIONS TO THE U.S. DEPARTMENT OF THE INTERIOR REGARDING PROPOSED SOUTHERN CALIFORNIA OUTER CONTINENTAL SHELF OIL AND GAS LEASES

WHEREAS, the U.S. Department of the Interior has submitted a Draft EIS concerning the environmental impacts associated with a Southern California Outer Continental Shelf oil and gas leasing program proposed for 1975; and

WHEREAS, the Comprehensive Planning Organization, acting as the areawide clearinghouse for the San Diego Region pursuant to the National Environmental Policy Act, has reviewed the proposed project; and

WHEREAS, the Draft EIS does not discuss the need for the proposed leasing program in the context of a comprehensive national energy policy; and

WHEREAS, the Draft EIS presents information which indicates that pollution of ocean and shoreline resources could occur due to continual low level oil leakages and major oil spills; NOW THEREFORE

BE IT RESOLVED that the Board of Directors of the Comprehensive Planning Organization makes the following recommendations to the U.S. Department of the Interior as input to the Draft EIS on Southern California OCS gas and oil leasing, and authorizes that this resolution and the staff report be forwarded to the Department of the Interior.

In view of the probable adverse environmental impacts associated with the proposed action as identified in the Draft EIS, no leases should be made until the precise need for So. California OCS oil and gas has been identified in the context of comprehensive national energy, environmental and development policies and programs.

Once this need has been identified the number and location of tract leases should be determined with primary regard to serious long term environmental and economic consequences, as well as to the predicted availability of oil and gas resources and costs of extraction and production. These decisions should involve the elected officials and staffs of Southern California local governments.

PASSED AND ADOPTED by the Board of Directors of the Comprehensive Planning Organization this 12th day of May, 1975.

James E. Hobel

CHAIRMAN

Attest:

SECRETARY

e. Comprehensive Planning Organization of San Diego

The Comprehensive Planning Organization presented the following comments:

(1) The Project Independence Blueprint does not support the need for OCS development off Southern California.

(2) The need to expand comments on oil spill data.

(3) The uniqueness of the Southern California coast and the need to have a review of the DEIS by a major independent scientific group.

Disposition

(1) The Interagency Task Force on Oil in preparing the Project Independence report stated that, "It should be understood that the results constitute neither forecasts nor recommendations..." (Oil: Possible Levels of Future Production, p.1). The report includes the California OCS in all possibilities for increasing oil production. A close examination of the document indicates that the California OCS is considered as a whole rather than in sections and does not address Southern California separately.

(2) The figures relating to the estimated annual oil leakage and minor spills were incorrect. Instead of the 80,595 barrels as shown, it should be 3,820-43,606 barrels. The oil spill information has been corrected and expanded in the final EIS. See Section III.A.

(3) It is agreed that the Southern California coastal zone is unique and that all independent scientific input is necessary to maintain the environment. During the review of the DEIS many comments from the scientific community were received and have been considered in the preparation of the final EIS. In addition, a scientific baseline study will occur prior to oil production offshore. In conjunction within the program, a monitoring program will be established in order to protect the coastal resources during the offshore program. To date, the scientific community has provided much input into the program.

4. PUBLIC HEARING TESTIMONY AND RECORD

4. Public Hearing Testimony and Record

On May 6 through May 8, 1975, the Department of the Interior held public hearings in Los Angeles, California for the purpose of receiving views, comments and suggestions relating to the proposed 1975 Outer Continental Shelf (OCS) Oil and Gas Lease Sale No. 35 for offshore Southern California.

Presiding over the hearing was administrative law Judge John R. Rampton. The hearing panel consisted of Jack Carlson, Assistant Secretary Energy and Minerals; Roland Robison, Deputy Assistant Secretary Land and Water Resources; David Lindgren, Deputy Solicitor; Douglas Wheeler, Deputy Assistant Secretary Fish, Wildlife and Parks; and Don Truesdell, representing the Director of the Bureau of Land Management. The members of the back-up panel were: William E. Grant, Manager, Pacific OCS Office, BLM; Ruggles Porter, U. S. Fish and Wildlife Service, USDI; Frank Kelly, Staff Assistant to Assistant Secretary, Land and Water Resources, USDI; Fred Shambeck, Oil and Gas Supervisor, Pacific Area, U. S. Geological Survey; Charles Morris, Staff Geophysicist, Pacific Area, U. S. Geological Survey; Merlin I. Carter, Environmental Manager, Pacific OCS Office, BLM.

One hundred sixty-five persons submitted oral and/or written testimony for the hearing record. They represented state and local government units, national, state, and local environmental groups, the petroleum and related industries, segments of the manufacturing, agricultural, and service sector, utility and service companies, universities, professional organizations, citizens' organizations, and private citizens. Comments ranged from total support to total opposition. For a graphic illustration of the testimony, see Figure IX-1. Where inaccuries in the data presented in the draft statement were pointed out, changes have been made, where omissions of information were cited, they were added to the statement if verified by BLM staff. In all cases, specific information has been considered in preparation of the final EIS.

The hearing record, including a 1,180 page transcript of the oral testimony, and all written testimony submitted is available for inspection at the office of the Manager, Pacific Outer Continental Shelf Office, Bureau of Land Management, 7663 Federal Building, 300 N. Los Angeles Street, Los Angeles, California 90012, and at the Office of Public Affairs, Bureau of Land Management (130), Washington, D. C. 20240.

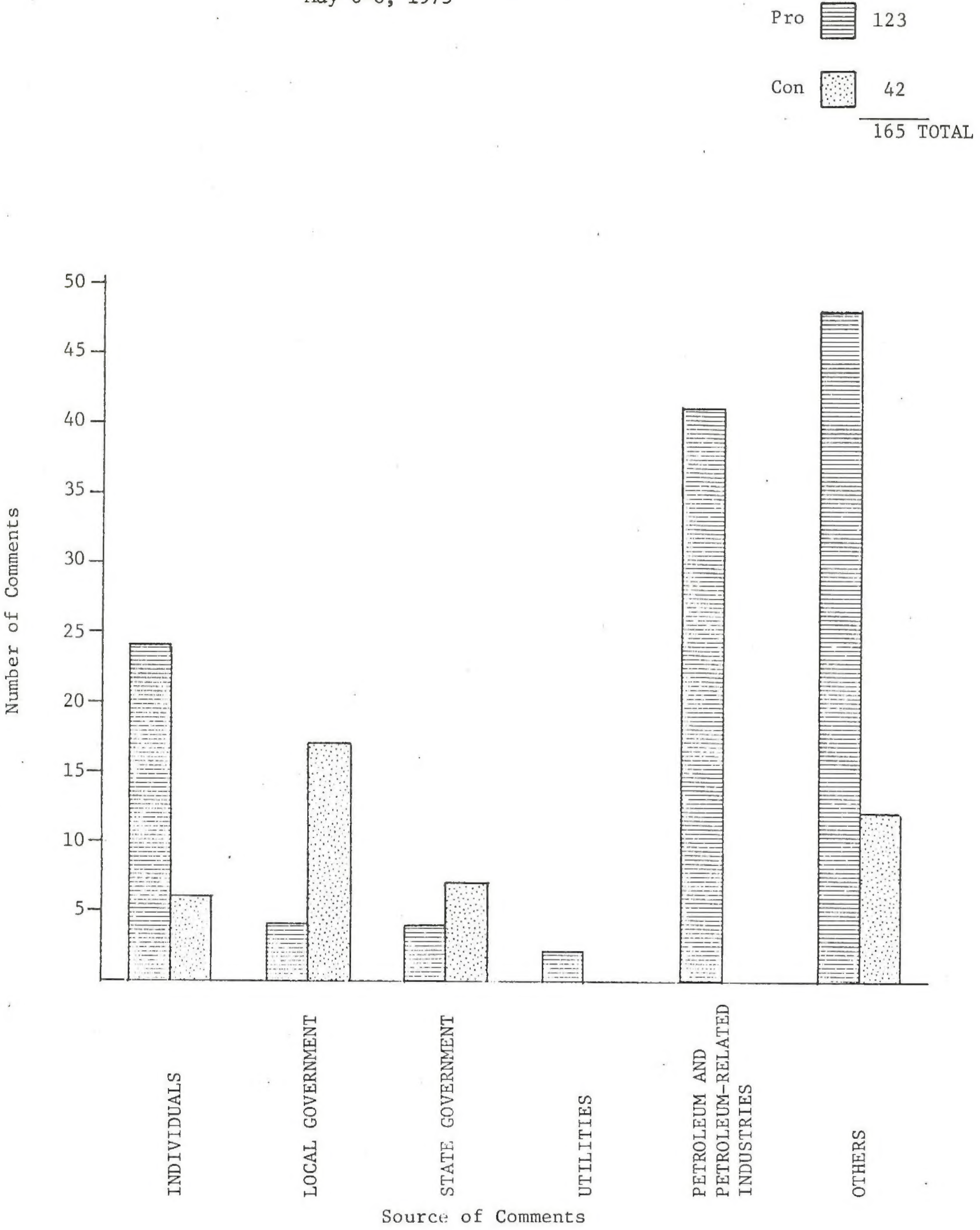
Numerous detailed comments were received. The following categories of issues along with the range of statements concerning these issues are cited below.

Witnesses/Testimony Supporting Sale #35

There were 123 individuals who submitted testimony in support of the proposed lease sale. Their reasons for support fell into several general categories. These are discussed below.

A large portion of the individual comments in favor of the proposal, regardless of their affiliations, expressed concern for the economic well-being of the nation, state, region or community as the primary reason for supporting the proposed lease sale. Agricultural groups point to increasing consumer prices as the result of increasing costs for imported petroleum. Florists and ornamental horticulturists testified that they generate an estimated $6 billion

Figure IX-1. A summary of Comments Presented at the Public Hearing for OCS Leasing in Southern California, May 6-8, 1975



on the consumer level. However, they are dependent on petroleum and natural gas to provide a constant interior environment necessary for plant growth. They have already made large reductions in their useage and without adequate supplies they cannot continue their operations. The remainder of the individuals were representing builders, trade unions, manufacturing firms, trucking associations, realtors, chambers of commerce, some state governors, private citizens and others. They generally shared the opinion that local, state and/or national economic problems could be alleviated or possibly solved by offshore leasing. Many testified that they had already cut their useage and that any additional reduction in their allotments (or the availability of) natural gas and petroleum products would result in partial or complete shutdowns.

The primary concern of a number of individuals was with the fuel shortages of the past or the "Energy Crisis". Oil producers, oil jobbers and public utilities felt the continued increase in consumption, which is outstripping production, will result in severe curtailment unless new reserves are found. Numerous other witnesses, such as Mr. Van Cott of the Highway Users Federation (composed of 137 business and trade associations) stated that their ability to operate will be in jeopardy if the energy crisis continues. The city of Tehachapi expressed grave concern regarding curtailment of its natural gas supply, which is used to run the pumps that provide much of the city's water. Also individuals representing construction and manufacturing firms, processing companies, service companies, agricultural co-ops and petroleum related industries felt their ability to function was being severely restricted. Several were fearful of being forced out of business. For example, the California Fertilizer Association stated that all California nitrogen fertilizer plants and all but two in other parts of the country are designed to use only natural gas. These plants, which represent a $40 to $150 million investment cannot be converted to other fuels. They would have to be completely dismantled and rebuilt. A few individuals expressed a concern for job security as a reason to support the proposed lease sale. Some represented workers in the petroleum industry, others represented individuals dependent on petroleum products in one way or another. Some witnesses depend on selling petroleum products, while the others are dependent on petroleum products to bring customers to their establishments. Most were of the opinion that employment in their areas is directly proportional to the availability of petroleum products.

Several individuals felt the unfavorable balance of trade, which in part has resulted from increased prices for foreign oil, is reason to support the proposed lease sale. Others cited the unfavorable trade balance as a threat to national security. Witnesses also expressed concern that the threat of an oil embargo had seriously effected our bargaining power in international disputes.

Some witnesses stated environmental damage would be minimal. They cited improved drilling techniques and improved containment and clean up capabilities. A few felt the small number of large spills, four out of approximately 18,000 wells, was insignificant in comparison to the number of wells drilled. The long term effects of spills were said to be minimal. Others simply felt the positive benefits to be derived from the proposed lease sale outweigh the risks. This group was composed of petroleum and petroleum related industries, manufacturing firms, unions, chambers of commerce, agricultural groups and private citizens.

In summary, most individuals expressed more than one reason in their support of the proposed lease sale. However, an effort was made to find a common theme in each individual's testimony, and group the individuals in a particular category in order to illustrate the various concerns expressed during the hearings.

It should be noted that many individuals in favor of the proposed lease sale were also concerned with the question of environmental impacts, liability, safeguards, etc. Some said they were in favor only if strict laws and regulations were enacted and other specific requirements were met.

Witnesses/Testimony Opposing Sale #35

Forty two of the 165 witnesses opposed immediate OCS leasing. Most said they would not oppose OCS leasing if their stipulations were acted upon. In short, nearly all of the 42 advocated postponing the lease sale for several to more than ten years instead of banning the sale forever.

Thirteen witnesses expressed serious concern because of the lack of a national energy policy. The consensus was that it would be a grave error to commit a potentially large portion of our remaining finite petroleum resources at this time, when those resources would be used primarily as fuel. They felt this resource should be withheld for use in the petrochemical industry. Although no comprehensive national energy policy presently exists, the Project Independence Blueprint submitted by the Federal Energy Administration sets a goal of independence from unreliable foreign sources of energy by 1985. Since the United States currently imports about 40% of its petroleum and domestic production is still declining, offshore development is often justified to meet projected oil and gas demands. See section VIII.B. for a further discussion of energy alternatives to offshore development. Also see Section VIII.D. of the Final Programmatic EIS on Proposed Accelerated OCS leasing for a discussion of National Energy Policy.

About one third of the opposing witnesses felt the sale should be delayed until the California Coastal Zone Conservation Commission had completed its work and its plan was adopted. Emphasis was placed on the fact that Proposition 20 (creating the Coastal Commission) was passed by a popular referendum prior to the Federal Coastal Zone Management Act. A comment by Richard T. Maullin, Chairman of the California Energy Resources Conservation and Development Commission was typical, "...most if not all of the draft policies developed by the Coastal Zone Conservation Commission would result in improvements in mitigating potential adverse impacts, without in any way detracting from or impeding orderly resource recovery." Mr. Richard Hammond of the California Coastal Zone Conservation Commission (CCZCC) stated that the DEIS had failed to relate to the Coastal Commission and its plans. Strong sentiment favored close cooperation between the DOI and the CCZCC to insure the compatibility of both documents. In addition to closer coordination with the CCZCC many witnesses expressed the need to coordinate more closely with other state and local agencies and governments. To wait for the adoption of the CCZCC plan before leasing and then try to coordinate the two plans would involve a delay of more than a year. The coastal plan will not be submitted to the legislature until January 1976. In the words of Mr. Richard Hammond of the CCZCC, it could be a long time before adoption of the plan; he quoted a legislator as saying "Mr. Hammond, I examined Proposition 20 and I don't see any provision in it requiring that the legislature act on this within a year's time or any other time." In light of the critical petroleum needs of the United States, it would seem imprudent to postpone OCS leasing until the CCZCC plan was formally adopted since its adoption is not a certainty. Any onshore development in the coastal zone, as a result of the proposed sale, will have to conform with any final coastal plan which may be adopted by the State Legislature. Also refer to the response to the Coastal Commission's detailed comments in Section IX.B.2.b.

Nearly all the witnesses expressed concern regarding environmental risks or damage. Many of the comments were only very general, however, some of the specific areas of concern were: 1) contamination of potential or actual food sources, 2) disruption of air/water interface where O_2 produced by phytoplankton enters the atmosphere, 3) loss of wildlife from numerous small spills and potential massive die-offs from large spills, 4) chronic low level pollution and its effects on beaches (see Sections III.B.C.D.E.1. for discussion of these four topics, 5) visual disruptions created by platforms (See Section II.G.3.b. and III.I.2.), 6) geologic hazards (see Section II.A.4.), 7) increased air pollution (see Section II.H.1. and III.F.1.), 8) lack of equipment and technology to cope with large spills (see Sections IV.C.), 9) loss of valuable recreation areas, and 10) the threat to areas of special biological significance (see sections III.I.5., III.D and VIII.A.1.).

Of the six witnesses who felt the DEIS was inadequate most sited insufficient coverage of one or more of the above categories as the reason. The categories have all been reviewed or revised, but it should be noted here that OCS Orders require strict environmental controls. Also, buffer zones are proposed as alternatives to modify the proposed sale to help protect Areas of Special Biological Significance, breeding grounds and recreational areas.

Over half the witnesses in opposition testified that OCS development was not necessary because strict conservation and development of alternate energy sources could make the U. S. self sufficient. There were numerous accusations that large utilities, oil companies and even the federal government were suppressing workable methods of utilizing alternate energy sources. There was also strong sentiment that very significant amounts of energy could be conserved and that the DEIS had not adequately studied either conservation or alternate sources of energy.

Mr. Greenlee presented an interesting analysis of windpower as an energy source. However, he attempted to summarize the feasibility of this alternative for an individual. The EIS considers it as an alternative to the energy generated by this sale. Thus, Mr. Greenlee's comments are not adequate for the EIS purposes. The EIS sufficiently treats the macroscopic aspects of known wind resources, technology and economics. Mr. Greenlee also offered comments concerning solar and hydrogen energy sources. These comments state that conservation is necessary but hard, and that we will run out of oil eventually anyway. This is noted in the EIS. As to the alternatives he mentions, sun, wind, and hydrogen, he notes that there are problems associated with each. The EIS analyzes alternatives on the basis of available technology;' thus it recognizes his comments implicitly. He makes no announcements of starting new technologies which would necessitate inclusion in the subject EIS.

Ms. Lorna Moffat testified that La Pan Fuel Systems of Fort Wayne, Indiana had developed a system that would improve gas mileage between 300 and 350%. La Pan Fuel Systems was contacted for additional information but none was provided. Several witnesses including Allen T. Van Huisen emphazized the great potential energy from geothermal operations and from the revitalization of existing oil and gas fields.

Mr. Harold R. Hay discussed the use of solar energy for heating and nocturnal methods for cooling houses. He stated that the technology exists today, to utilize solar energy for a significant percentage of our total energy needs. He has designed a system which was tested by California Polytechnic State University in San Luis Obispo through a Housing and Urban Development contract. In part, their report stated: "...in an occupied California house that used no oil, gas or electricity throughout a year, in which outdoor temperatures ranged from 26 to 99°F. Indoor comfort was superior to that of conventionally heated and cooled adjacent houses." (sic) The California Polytechnic report went on to say that "...this system, with minor modifications discovered by this evaluation, is workable from an architectural, a thermal, an economic and an occupancy standpoint at the present time, and could play an important role in energy conservation in the United States without further prototype development." Mr. Hay stated that utilizing solar heat and nocturnal cooling in new residential buildings is much simpler than modifying existing buildings, since it is a part of the roof etc. He does not advocate converting existing structures due to the construction costs involved. However, until these older systems are gradually phased out, they will continue to place a heavy demand on conventional power sources. Adoption of systems, like Mr. Hay's, in new buildings, will result in tremendous savings to the home owner as well as to business and significant reduction in the nation's petroleum needs. These comments give the background for a specific space heating-cooling system utilizing Solar Energy. This EIS acknowledges that solar energy will be a vital component of the future energy mix in space heating. The Sky Therm System has been mentioned in the EIS as indivative of the potential for technological improvement. (See Section VIII.B.)

In summary, witnesses who discussed energy conservation and alternate sources of energy felt the DEIS was inadequate in its discussion of these areas and that leasing should be postponed until a thorough study of these alternatives proved that potential OCS petroleum reserves were still needed. Section VIII.B. provides additional information regarding alternate energy sources and conservation. It should be noted, however, that even if alternate source technology existed today in adequate amounts, that massive amounts of petroleum will be needed to fill our needs until these alternate technologies are brought on line.

Mr. Francis Sarguis, President of Get Oil Out, and other witnesses felt leasing should be postponed until adequate oil spill containment equipment and technology had been developed. Mr. Sarguis quoted a report published by the University of Oklahoma Press entitled "Energy Under the Oceans, A Technological Assessment of Outer Continental Shelf Oil and Gas Operations." (This report is one of the most authoritative and current of its kind.) "Neither industry nor governemt has an adequate capability to contain and clean up spills on the OCS. The effectiveness of existing containment and cleanup equipment is limited by wave height, wind velocity and current... as for the oil spilled, the use of floating booms is the primary containment technique being used today and developed both by industry and government agencies. The Coast Guard has tested a lightweight boom system which is supposed to be effective in five foot seas in combination with 20-miles per hour winds and 2 knot currents. However, it should be noted that the testing of this equipment was done in calm seas." In further testimony, Mr. Sarguis explained that in order to contain a large spill 10 to 15,000 feet of booms would be required. There are presently less than 5,000 feet of available booms.

Mr. Sarguis and other witnesses felt that adequate oil spill containment and recovery equipment should be required in lease stipulations. Existing OCS Order No. 7 (See Appendix 5) does require that the most advanced containment and recovery equipment must be kept at each operation or be immediately available at an onshore location and that this equipment "... shall be available prior to the commencement of operations." Mr. Sarguis's point is, that even if the regulations are enforced the "most advanced containment and recovery equipment" is inadequate.

Mr. Burt Pines, City Attorney for Los Angeles, and other witnesses complained that a separate analysis had not been performed for each of the five lease areas. This has been done, in summary form, in this final statement. Refer to Section VIII.A.1.

Several witnesses expressed concern that recreational areas would be adversely effected by OCS leasing. See Section III.I.2.

Many witnesses testified that OCS leases should not be granted because the DEIS was inadequate for technical or legal reasons. Alleged technical shortcomings, not already discussed above included a statement from Mr. E. A. Menuez of the California Air Resources Board. "The discussion of the effect of oil production and treatment associated with this project on air quality...is inadequate to support the conclusion that there will be no adverse impact on air quality. The EIS needs to be improved by an approximation, based on present or foreseeable technologies..." Section II.H.1. dealing with air pollution has been expanded.

Major Bradley, of Los Angeles, Mr, Kenneth Cory, Chairman of California State Lands Commission and others felt the DEIS was legally inadequate because, among other things, the final programatic EIS had not been released prior to the time the site specific DEIS was released.

It should be noted that there will be a sixty day comment period, after the final programatic EIS is released, to comment on issues which are interrelated between the two environmental impact statements. Although these comments will not be included in the site specific final EIS, they will be considered prior to issuing a decision concerning this proposed action.

Copies of additional written testimony submitted after completion of the three day public hearing are included on the following pages.

H-35-W1

Testimony Before the
United States Department of the Interior
Bureau of Land Management
Outer Continental Shelf Office
on the
Proposed Outer Continental Shelf Oil and Gas Lease Sale
by the
California Business Properties Association

California Business Properties Association
2311 W. El Segundo Blvd.
Hawthorne, CA 90250

Testimony
on the
Proposed Outer Continental Shelf Oil and Gas Lease Sale*

We are particularly concerned with the necessity of satisfying current petroleum fuel needs, both in California and nationwide, through increased development of our domestic reserves. Consequently we encourage the wisdom of oil and gas exploration in the Continental Shelf. We endorse the oil and gas lease sale of tracts of submerged lands off the Southern California shore.

California Business Properties Association comprises the several hundred developers, builders, financiers, commerical property owners, real estate agents, major retailers, and professional service organizations based in California, but operating nationwide, engaged in creating redevelopment projects, public and private buildings, and commercial and retail centers.

One of the major activities of our membership is responding to America's commercial needs by the location, building, operation, and modernizing of shopping centers. Forty-four percent of America's retail takes place in shopping centers, of which there are 13,800 in the United States. Through real estate taxes, shopping centers contribute over $483,000,000 annually to government and public services.

As developers and planners for the commercial future, as well as the managers and operators of the commercial present, we are concerned about the transformation from the present to the future.

Realistically, we must respond to the situation as it now exists. In the Far West and particularly in Southern California we are approximately 90% dependent on petroleum-related energy for our operations. Those operations encompass the ability of our clientele to move to and from our facilities, they include servicing by our suppliers, the transport of our employees, and our utility service consumption.

At the present we are highly dependent upon independently driven and personally owned motor vehicles. A lack of petroleum fuel which could result in substantially increased petroleum fuel costs will significantly raise the costs of construction, the expenditure by our clientele for gasoline to move to and from our locations, the transportation costs by our suppliers, the costs of retaining employees, and the costs of our utilities and services. The consequence is certain to increase rents, or our ability to meet expenditures from existing rents, and the costs of goods and services for our clientele will continue to rise.

For these and a variety of reasons related to the life-style that currently exists, we particularly urge the development of domestic fuel reserves and an active reliance on the immediately offshore supplies.

---

* For more information:

James A. Cook, Executive Vice President
California Business Properties Association
2311 W. El Segundo Blvd.
Hawthorne, CA 90250
213:757-9151

We are also among the envisioners and fashioners of the future. Our membership conceives and plans the commercial, industrial, and business center developments that will mark a portion of the public lifestyle in the next few decades. In this connection, we are also active in carrying forward the municipal redevelopment projects that seek to revitalize the central cores of our older cities wherever and whenever such redevelopment projects can be made commercially and economically feasible.

An active, profitable, remunerative commercial existence for us now helps to provide the financial wherewithall for us to develop future commercial life. That future commercial life may gradually evolve toward more energy-efficient lifestyles and more reliance on less fuel-costly forms of personal transportation. This evolution takes time as well as an economic vitality now to make possible an altered lifestyle then.

Our businesses are almost without exception dependent on appeal to the public and a voluntary response by the public to our offerings and by our installations. We do not command monopoly control of the marketplace, we do not exist by virtue of extraordinary governmental protection, and we are not the purveyors of a unique product or service unavailable elsewhere. Consequently, we are particularly attuned in responsiveness to broad public desires and needs. Therefore, in this regard, we are well aware of environmental concerns and response to the public welfare. We applaud the scrutiny and attention to environmental detail that environmental regulation stimulates. We particularly caution, however, that suspicion about environmental effects or undue recourse to excuses of aesthetics do not become an environmental reason for cancellation of this lease sale when and if no other direct effects upon the public health are evident.

We urge the lease sale of offshore gas and oil reserves as the most likely interim measure to maintain an economic viability until alternative sources of fuel, until different engine techniques, and until supplemental modes of transportation all become available.

Emphatically, we oppose any curtailment of such interim gas and oil reserve uses when that curtailment is predicated on a forced and cataclysmic jump directly to alternative fuel concepts and uses. The maintenance of stable fuel costs through increased domestic reserves appears to us as the best method of establishing a bridge rather than a barrier to an energy efficient future.

JAC:bh

STATE OF CALIFORNIA—RESOURCES AGENCY
EDMUND G. BROWN JR., Governor

AIR RESOURCES BOARD
1709 – 11th STREET
SACRAMENTO 95814

H-35-W2

April 30, 1975

Bureau of Land Management
U.S. Department of the Interior
7663 Federal Building
300 North Los Angeles Street
Los Angeles, CA 90012

Attention: Mr. Mike Carter

Dear Mr. Carter:

Subject: Public Hearing on OCS Oil and Gas Lease Sale Offshore Southern California, May 6 - 8

In accordance with our telephone conversation this afternoon I am enclosing five copies of the Air Resources Board's comments on the subject EIR. These comments have been approved by Headquarters and represent the official opinion of the ARB.

We will be unable to appear in person to testify. If protocol permits we would appreciate it if the hearing officer could read these comments aloud to enable the audience to become aware of our position.

Sincerely,

E. A. Menuez
Staff Engineer

Attachments

cc: W. G. Kirkham, State Clearinghouse

H-35-W2

State of California The Resources Agency

Memorandum

To : Honorable Ronald Robie, Director
Department of Water Resources
1416 Ninth Street
Sacramento, CA 95814

Attention: Mr. Ken Fellows

Date : April 30, 1975

Subject: 1975 Outer Continental Shelf Oil and Gas Lease Sale
Ventura/Los Angeles Counties
SCH. No. 75030452

From : Air Resources Board
William C. Lockett, Chief
Evaluation and Planning

W. C. Lockett

This is a programmatic EIS covering a proposed offer for lease of 1.55 million acres, divided into 297 parcels, in five areas on the outer continental shelf off the southern coast of California.

The present air quality in the South Coast and the San Diego Air Basins is adequately described as is the meteorology of the project area.

The discussion of the effect of oil production and treatment associated with this project on air quality (Volume II, p. 183 et seq.) is inadequate to support the conclusion there will be no adverse impact on air quality. Onshore installations always have some pollutant emissions which may or may not have a significant adverse impact. Emissions from offshore installations under some meteorological conditions may be transported to the shore where they will impact on the air quality.

Only by an adequate analysis of the cumulative effects of all the treatment installations can a conclusion about the adverse impact of the project on air quality be reached. We realize the difficulty at this preliminary stage for such an analysis; however, some estimates need to be made.

Estimates have been made of the effect on ambient air quality of the shore installations proposed by Atlantic Richfield for their proposed increase in production from platform Holley and by the U.S.G.S. for Exxon's proposed development of the Santa Ynez tract. These estimates appear reasonable in the light of present day technology.

The EIS needs to be improved by an approximation, based on present or foreseeable technology, of the quantities of oil and gas to be treated in onshore facilities and the probable location of these facilities. Analyses of the possible effect of the emissions from these facilities on the ambient air quality, using the most applicable modeling techniques, should be prepared and due attention given to possible cumulative effects of these future installations including those proposed by Atlantic Richfield and Exxon.

We recommend that the EIS be amended eliminating the claims of no adverse impact, adding the analysis discussed above, and incorporating a statement that the effect of any installation on air quality will be analyzed in detail for each installation and presented in the future EIS's for these installations.

H-35-3

STATEMENT OF
JOHN F. CURRAN
CONSULTING GEOLOGIST
BEFORE
THE U. S. DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT HEARING
ON
ENVIRONMENTAL IMPACT OF PROPOSED OIL AND GAS LEASING OUTER CONTINENTAL SHELF, OFFSHORE SOUTHERN CALIFORNIA

LOS ANGLES, CALIFORNIA

MAY 6-8, 1975

My name is John F. Curran. I am a consulting geologist in Santa Barbara. I am registered by the State of California as required by law and also serve as a member of the State Board of Registration for Geologists and Geophysicists. I am a member of the American Association of Petroleum Geologists and a past-president of the Pacific Section of that organization. I am a member of the American Institute of Professional Geologists and served as a vice-president of its California Section.

As has been noted in the environmental impact statement, I am a co-author with K. B. Hall and R. F. Herron of a study on the future oil potential of the Santa Barbara Channel. This study was published in 1971 by the American Association of Petroleum Geologists as a part of their Memoir 15 entitled "Future Petroleum Provinces of the United States". I recognize that the Channel may not be the principal subject of this particular hearing but it is a part of the overall Outer Continental Shelf study and planning and I wish to speak briefly on the oil potential of the Channel area.

The assignment for all studies included in Memoir 15 was to estimate the amount of original oil in place in the ground without regard to the present technological or economic feasibility of its recovery. Much of our study was done by comparison with productive areas onshore. Over 110 published and unpublished references were consulted and a considerable amount of proprietary offshore information was obtained and also studied.

In the initial preparation of our estimates of original oil in place in the Channel several statistical approaches were tried using the usual parameters employed for such calculations. The computed results varied but all fell within the range of 25 to 35 billion barrels of oil in place, or, assuming a recovery factor of 25%, some 6.3 to 8.7 billion barrels of recoverable oil in place. At that time these results seemed optomistically high. Accordingly, comparisons were then made with other Coast Range sedimentary basins using more generalized parameters. These comparisons resulted in final estimates of 10 to 15 billion barrels of oil in place in the Channel area or, again using the 25% recovery factor some 2.5 to 3.8 billion barrels of recoverable oil in place.

However, while the AAPG Memoir 15 was still in press, the Humble Oil & Refining Co. (now Exxon, U.S.A.) announced that they had discovered something in excess of 1.2 billion barrels of recoverable oil on the 18 Federal leases held by Humble and two other companies near Point Conception (the Santa Ynez Unit). Or, again using the 25% recovery factor in reverse, some 5 to 8 billion barrels of oil in place in this one local area alone which comprises only about 1/40th of the total Channel area.

Therefore, it now appears that the original estimateof 25 to 35 billion barrels of oil in place may not have been too high after all, and could be a significant contribution to the nation's ultimate energy needs. It is also interestingto note that the 6,000 square mile area of the Santa Barbara Channel is about 1/3 of the 18,500 square mile area studied by Frank Parker. He estimated 75 billion barrels of oil in place, or again using the 25% recovery factor, 18.8 billion barrels of recoverable oil. This might indicate that 6 to 8 billion barrels of recoverable oil in the Channel is not unreasonable.

As a petroleum geologist with 30 years of experience in California, I believe that these petroleum reserves are there in the Santa Barbara Channel in ample recoverable quantities to contribute signifcantly to our nation's energy needs, though much of it is beyond the capability of present technology and economics. These offshore resources must ultimately be recovered if there is to be any hope of an adequate energy supply for the United States at the turn of the century. I trust that we all know that an oil field without wells cannot be turned on like a kitchen faucet. From the date of any lease sale on any Outer Continental Shelf property, wherever located, it will be at least five years before any significant amount of oil is produced and probably 15 to 20 years before peak productive capacity of any offshore area is reached. Much work needs to be done before any oil is produced from any offshore area. These offshore petroleum resources must ~~ultimately~~ eventually be exploited for the universal well being of the country and I suggest that the sooner we start at this task, the better off we will be in the long run.

H-35. -60-4

STATEMENT OF

Frank S. Parker

CONSULTING GEOLOGIST

BEFORE

THE U. S. DEPARTMENT OF INTERIOR

BUREAU OF LAND MANAGEMENT HEARING

ON

ENVIRONMENTAL IMPACT OF PROPOSED OIL AND GAS LEASING

OUTER CONTINENTAL SHELF, OFFSHORE SOUTHERN CALIFORNIA

Los Angeles, Californa

May 6-8, 1975

I am a Registered Geologist, California number 190 and a Registered Professional Engineer (Petroleum) California number 583. I am a member of the American Association of Petroleum Geologists, the Society of Petroleum Engineers, the Amercan Institute of Professional Geologists, and am a Fellow of the Geological Society of Amerca. I am a graduate of the University of California at Los Angeles, continuing with graduate studies at Yale University (1928 to 1930). My professional career, spent for the most part in California and a great deal of that in the Los Angeles Basin, included employment by the U. S. Geological Survey, Shell Oil Company, Wilshire Oil Company, the Petroleum Administration for War, and Signal Oil & Gas Company (now named Burmah Oil Co.).

It was suggested that I speak to you because I made a study and estimate of oil-in-place in the off-shore area south of the Channel Islands to the projected Mexican Boundary, and westerly from the shore to the margin of the Continental Shelf. This work was published by the A.A.P.G. as part of Memoir 15, 1971, entitled, "Future Petroleum Provinces of the United States --- Their Geology and Potential". I have a few separate prints of this paper available here. My estimate for the area covered was 75 billion barrels of oil-in-place.

The basis and method of estimation is set out in that paper.

Subsequently I prepared an informal and unassembled report at the request of Dr. Nicco van Wingen, Consultant, South Pasadena, which was usedcby him as an aid in preparation of estimates of reserves, location and magnitude of developments, and other matters of import to an Environment Impact Statement needed by Western Oil and Gas Association. I received a professional fee for this from Dr. van Wingen. My report embraced only the area of the proposed lease sale and I estimated the oil-in-place in this more limited area to be about 40 billion barrels.

I direct your attention to some fundamental key words that have been used. The are; "OIL-IN-PLACE" and "ESTIMATE".

OIL-IN-PLACE IS A FACT. Whether we know much or little about an area, it never-the-less contains a certain definite amount of OIL-IN-PLACE. It does not change by laws, studies, or opinion but only by removing it through wells, or in a few rare instances, by mining it.

The ESTIMATE of volume of oil-in-place is not a natural fixed amount. It is the application of technical to available information to try to approximate that amount. It is not expected to be exact and in areas of scanty information may be wide of the mark. I believe, however, that another geologist having the same information, and also the same lack of information, would arrive at a figure comparable to mine.

However, when we apply the terms, RESERVES, RESOURCES or PRODUCIBLE OIL in such a thinly explored and untested area as we are presently describing, we are dealing with much more elusive values. While estimates of these figures are based on estimates of oil-in-place, other significant or controlling influences apply. Such factors as price of crude, costs of drilling, costs of leasing, advances in technology, taxes, and controls on rate of production have profound effects on the on the discovery, development and production of oil and consequently on the amount that can be considered reserves. There ARE even nulifying factors such as laws, rules, confiscation, and oppresive restictions that turn what might have been

reserves into OIL-LOCKED-IN-PLACE. This is the present status 3
of the subject area. At the present time, so far as the Nation is concerned, there is zero Reserves in the subject area. The oil has not been discovered, developed, or shown to be producible and it must not be regarded as a RESERVE until conditions permit discovery, development, and production.

H-35-W5

City Council
of the
City of Los Angeles
City Hall
90012

DAVID CUNNINGHAM
COUNCILMAN
TENTH DISTRICT

COMMITTEES
PUBLIC HEALTH, WELFARE
AND ENVIRONMENT, CHAIRMAN
REVENUE AND TAXATION
GOVERNMENT EFFICIENCY
485-3323
DISTRICT OFFICE
5220 WEST WASHINGTON BLVD.
SUITE 207
937-7515

Remarks of David S. Cunningham (Tenth District, Los Angeles) regarding the proposed Outer Continental Shelf Oil and Gas Lease Sale Offshore Southern California. For the United States Department of the Interior, Bureau of Land Management. May 6, 1975 -- Los Angeles Convention and Exhibition Center.

I call your attention to factors and questions which I believe lead to the conclusion that the proposed "Accelerated Leasing Program" for the development of oil resources in areas off the coast of Southern California should be rejected in the best interests of the people of Southern California.

First, I call to your attention a Resolution adopted, in November 1974, by the Los Angeles City Council which calls for the establishment of the outer continental shelf as a National Preserve -- to be developed for its oil resources only by a Declaration of the Congress. Numerous Southern California Cities and civic organizations have adopted similar resolutions. The intent of local governing bodies and citizens groups is clear -- the current appearance and environmental qualities of our offshore areas must be protected.

There is opposition to the leasing because legal, scientific, and environmental experts have brought to our attention gross inadequacies in the proposal and its Draft Environmental Impact Study (DEIS). You have heard repeatedly expressed doubts and questions about the need for the proposed oil development. Our energy needs for the next 5 to 10 years are not so clearly established. The oil companies themselves have offered varying estimates of our daily barrel needs. The historical energy growth rate of 3.4% also raises doubt and about the need for an accelerated O.C.S. Program.

There is great concern that alternatives have not been sufficiently explored. In particular, there has been virtually no consideration of our capacity in terms of conservation efforts. The citizens of Los Angeles and Southern California are particularly sensitive about their capacity to conserve energy. We, in the Los Angeles area, discovered during 1974, that we have a considerable capacity and potential for adjusting our energy demands so that we can conserve for the future. I believe that in realizing our ability to achieve significant conservation of energy, the people of the Los Angeles area have tacitly acknowledged that we have a tendency to be somewhat wasteful. Most importantly, I believe that the people of Southern California have demonstrated a willingness to make sacrifices and bear difficulties in cooperatively maximizing resources with a view of the future.

It seems clear that the citizens of Southern California are increasingly aware that, in addition to their capacity for conservation, there are other energy resources that ought to be explored and developed. Among these are geothermal and solar energy sources. And, there is concern that we have not fully developed our on-shore oil sources -- we need to know more about the potential of the Alaskan oil fields and the development of the Elk Hills reserves to mention just two land-based possibilities.

Also, I call to your attention the seeming conflict between various federal administrative policies, all of which are ultimately related to the patterns of energy usage. For instance, the Environmental Protection Agency is promulgating policies and procedures relative to traffic patterns and problems of pollution which would very likely affect the demand for petroleum products. At the same time, the President and his administration, and members of the Congress, are proposing programs which would have the effect of restraining the demand for petroleum products. As I say, there is doubt as to how policies such as those proposed by EPA, the administration, and Congress, coincide with the proposal to accelerate programs for offshore oil drilling -- it certainly seems to me that at some point these various policies must work at cross purposes.

Mention must be made of the proposed O.C.S. development program in terms of its likely impact on the unique characteristics of the Southern California Coastline as a recreational environment. You must be aware that close to one-half million Southern Californians have signed petitions in opposition to further development of offshore oil resources. Chief among concerns of citizens are the risks inherent in offshore oil drilling -- the risks of making the coastline unsightly and the likelihood of doing damage to our beaches. People are concerned that their beaches and ocean views be protected and maintained. The proposal for offshore oil develoment does not provide the citizens of Southern California with the necessary assurances that their recreational needs will be protected. And, I would remind you that in these difficult economic times the uses of our beaches and unobstructed views of the ocean are virtually the only recreational opportunities accessible to many Southern Californians -- particularly those with limited incomes. I dare say that if the issues of offshore oil development were framed as a ballot proposition, a clear majority of Southern Californians would vote against proposals for accelerated development of offshore oil resources. Decisions which have such far reaching consequences should not be left only to the view points of industry and administrative agency personnel. The people who must live with the results of such decisions must have their concerns and questions answered, and their viewpoints considered.

I will conclude with a summary of the doubts and questions which have yet to be clearly answered about the pooposal for accelerated OCS Oil Development:

1. Who are the decision makers, and what pattern will the decision-making process follow?

2. What, really, are our energy needs for the next five to ten years, and how will this proposal actually meet those needs?

3. What viable alternatives are there to the proposal for accelerated oil development?

4. How does this proposal relate to other governmental policies that would affect our patterns of energy usage?

5. What assurances do the citizens of Southern California have that the adoption of this proposal will not do serious harm to the recreational uses of the coast line?

These and other questions have not been convincingly answered. Lacking a national emergency or a coherently developed national energy policy, there are alternatives to this proposal for accelerated OCS oil development. And, alternatives to offshore oil drilling we must discover and explore.

Sincerely,

David S. Cunningham

H-35-W6

Lowney-Kaldveer Associates
Foundation / Soil / Geological Engineers

145 ADDISON AVENUE, PALO ALTO, CALIFORNIA 94301

JOHN V. LOWNEY, C.E.
PETER KALDVEER, C.E.
ROBERT R. PRATER, C.E.
DONALD H. HILLEBRANDT, C.E.
J. MICHAEL CLEARY, C.E., E.G.
415/328-6920

May 5, 1975

Bureau of Land Management
Outer-Continental Shelf Office
Room 7663, Federal Building
300 North Los Angeles Street
Los Angeles, California 90012

Gentlemen:

RE: PUBLIC HEARING ON PROPOSED
OCS OIL AND GAS LEASE SALE
OFF-SHORE DRILLING
SOUTHERN CALIFORNIA

We wish to record our support for petroleum development of the Southern California outer-continental shelf provided the development is accomplished without environmental degradation to coastal or off-shore areas. As president of a consulting engineering and geological firm, I am especially aware of the need for full consideration of the prevailing geotechnical conditions in developing the outer-continental shelf area and are gratified to read of the oil companies' commitment along similar lines.

Specifically, we support this development for the following reasons:

1. To aid the nation's balance-of-payments and thereby help stabilize the international monetary system.

2. To develop our national energy resources so as to be less dependent upon foreign sources.

3. Assuming that this off-shore oil and gas can be developed to provide a less expensive product than imported oil and gas, to lessen the cost of doing business and, therefore, to lessen the inflation rate.

4. To increase the supply of oil and gas in California, which is predicted to be less than the demand in the coming years.

As a business man with four offices in California and a staff of 28, I am most concerned about the available supply of gasoline in the future. During the winter of 1973-1974, we, as with so many others, were substantially affected by the lack of fuel supplies. Our personnel lost many hours waiting in long lines for fuel for our 15 automobiles and trucks. Since they were paid while they waited, the time lost represented a real loss to our firm which we never recovered.

Gasoline costs moreover have risen substantially over the past 18 months, and we have been unable to pass this total increase on to our clients and are thereby further pinched financially. We are now reconsidering our expansion plans of new branch offices since the fuel shortage is likely to adversely affect new offices even more than our present office operations. Our present offices have existing business relationships with various gas stations and that has proven to be of help. New offices may not be able to establish a relationship in sufficient time to be of benefit and could be damaged in a tight-fuel squeeze. Hence, with the prevailing poor economic conditions and the possibility of tighter future supplies of fuel, we are not eager to expand to other geographic areas.

Thank youfor the opportunity of permitting me to speak on a matter which I consider of vital importance to my business.

Very truly yours,

LOWNEY/KALDVEER ASSOCIATES

J. V. Lowney

John V. Lowney
President

JVL:sj

#35-W7

THE TENSION LEG PLATFORM

Prepared for

WESTERN OIL AND GAS ASSOCIATION
Los Angeles, California

Presented by

E. E. Horton, President

Deep Oil Technology, Inc.
Long Beach, California

Presented at

Southern California OCS Environmental
Impact Statement Hearing (DES 75-8)
Los Angeles, California
May 6-8, 1975

THE TENSION LEG PLATFORM

BACKGROUND

The Tension Leg Platform developed by Deep Oil Technology, Inc. is one of a new family of offshore structures being designed for use in deeper waters such as those immediately off California's coast. Conventional bottom - supported platforms become increasingly expensive in deeper water, but the Tension Leg Platform, in certain instances, can result in significant savings in both time and money over conventional platforms.

The Tension Leg Platform is but one of a new breed of buoyant structures sometimes referred to as "Compliant Structures" because they are designed to yield to wind and wave forces to a limited degree, rather than remaining absolutely rigid. Another type of "Compliant Structure", in some ways similar to the Tension Leg Platform, is the so-called "Oscillating Platform." A large scale test of this platform was made by the French oil company, Elf, in the Bay of Biscay a few years ago.

The Tension Leg Platform or "TLP" is similar to a taut moored buoy. It is a buoyant structure, held beneath the surface by tension members. This buoyant structure, in turn, supports a working platform held above the water surface by means of vertical buoyant columns. The Tension Leg Platform now undergoing tests on the seaward side of Catalina Island is a prototype of similar structures that could be used for the development of offshore oil and gas fields.

BACKGROUND (continued)

This type of platform can be designed for carrying out many of the activities encountered in offshore oil operations such as exploratory drilling, development drilling, supporting production equipment, and workover operations on subsea wells. Likewise, these deep water structures could be suitable for weather stations, for making oceanographic studies, and for use as offshore oil terminals.

ADVANTAGES OF THE TLP

The Tension Leg Platform is not fixed to the seafloor as is a conventional platform, nor is it anchored in the spread mooring configuration of a semisubmersible. Instead, its anchors are directly beneath its columns. These anchors can comprise either drilled-in pilings or deadweight clumps. The tension members connecting the anchors to the platform columns remain in tension at all times. These members are large cables, not unlike those used in a suspension bridge. The platform does not move up and down, and the distance between the seafloor and the platform's deck remains virtually unchanged.

Another important feature of the TLP concept is its portability. TLP's can be relocated with comparative ease, if a development drilling program should prove the initial site is off the reservoir structure. Likewise, TLP's can be relocated after the field is depleted.

ADVANTAGES OF THE TLP (continued)

A final advantage compared to fixed platforms is the TLP's flexibility with regard to depth and location. The TLP need not be designed and built for a specific water depth or location. By modifying the amount of equipment to be supported and by adjusting tension members to the appropriate length, the platform can be made suitable for virtually any location within a general region. This can allow construction to start on the platform prior to defining its specific location.

DEVELOPING THE TLP

More than six years of engineering, computer program development, wave-tank tests and, recently, at-sea prototype testing have gone into the development of the TLP concept. Computer programs were written to calculate the response of various platform configurations in given sea states. The validity of these programs was tested against wave tank experiments. The results of this work indicated that platforms of this type were feasible and could be rationally designed.

Much of the earlier effort centered around the objective of designing a platform that virtually eliminated the vertical motion while, at the same time, minimizing the cyclic loads of the tension members and limiting the lateral motions of the platform to acceptable values. This has been accomplished by sizing the members which make up the TLP structure and then selecting the optimum relationship between the horizontal and vertical members.

DEVELOPING THE TLP (continued)

All phases of the design program indicated the TLP concept would perform as predicted, thus the decision was made to proceed with a test program which would include a prototype TLP capable of operating in the open sea.

TEST PROGRAM

Seventeen oil companies joined Deep Oil Technology in sponsoring the construction and evaluation of a prototype test platform. The platform is triangular in shape, 130 feet on each side, and 66 feet in height from deck to lower horizontal pontoon. The test platform is representative of various sizes of larger platforms. For example, it could be thought of as an approximate 1/3 scale model of a large drilling and production platform (360 feet on a side) or a 2/3 scale model of a production/workover platform (200 feet on a side).

The platform has been on location since March 15th of this year. The test site is in 200 feet of water on the seaward side of Catalina Island, approximately 1/2 mile offshore. This site was selected because it not only provided conditions representative of the Southern California Cost, but also the anticipated waves could be scaled to larger waves that would be encountered in regions having more severe environments.

No drilling or other activity normally associated with offshore oil operations is being performed from the structure. Instead, the entire program is aimed at gathering data on how the platform responds to wind and wave actions. Maintenance requirements are also being determined, as well as anchoring and ballasting procedures.

A total of 51 channels of information are being monitored and recorded on magnetic tape. The data recorded falls into five categories: (1) waves, wind and current excitation; (2) mooring loads; (3) platform motion; (4) structural member stresses; and (5) riser pipe stresses and accelerations.

At the conclusion of the test period, the recorded data of the platform's performance will be compared to wave tank data and with the analytical predications. If these comparisons are satisfactory, and thus far, all indications appear that they will be, a valid method for designing TLP's will have been established.

We feel the TLP concept is well suited to filling the offshore oil industry's need for a safe, economical platform capable of performing in deeper water and in more severe environments. When used in conjunction with seafloor completion techniques, the TLP should provide an economic means of developing oil and gas fields in deep water.

ILLUSTRATIONS

Drilling and Production Platform
Oscillating Platform
Prototype Test Platform
Test Platform Construction and Outfitting
Test Platform on Location

References

1. Paulling, J.R., and Horton, E.E., "Analysis of the tension leg stable platform," Paper OTC 1263, Offshore Technology Conference, Houston, April 1970.

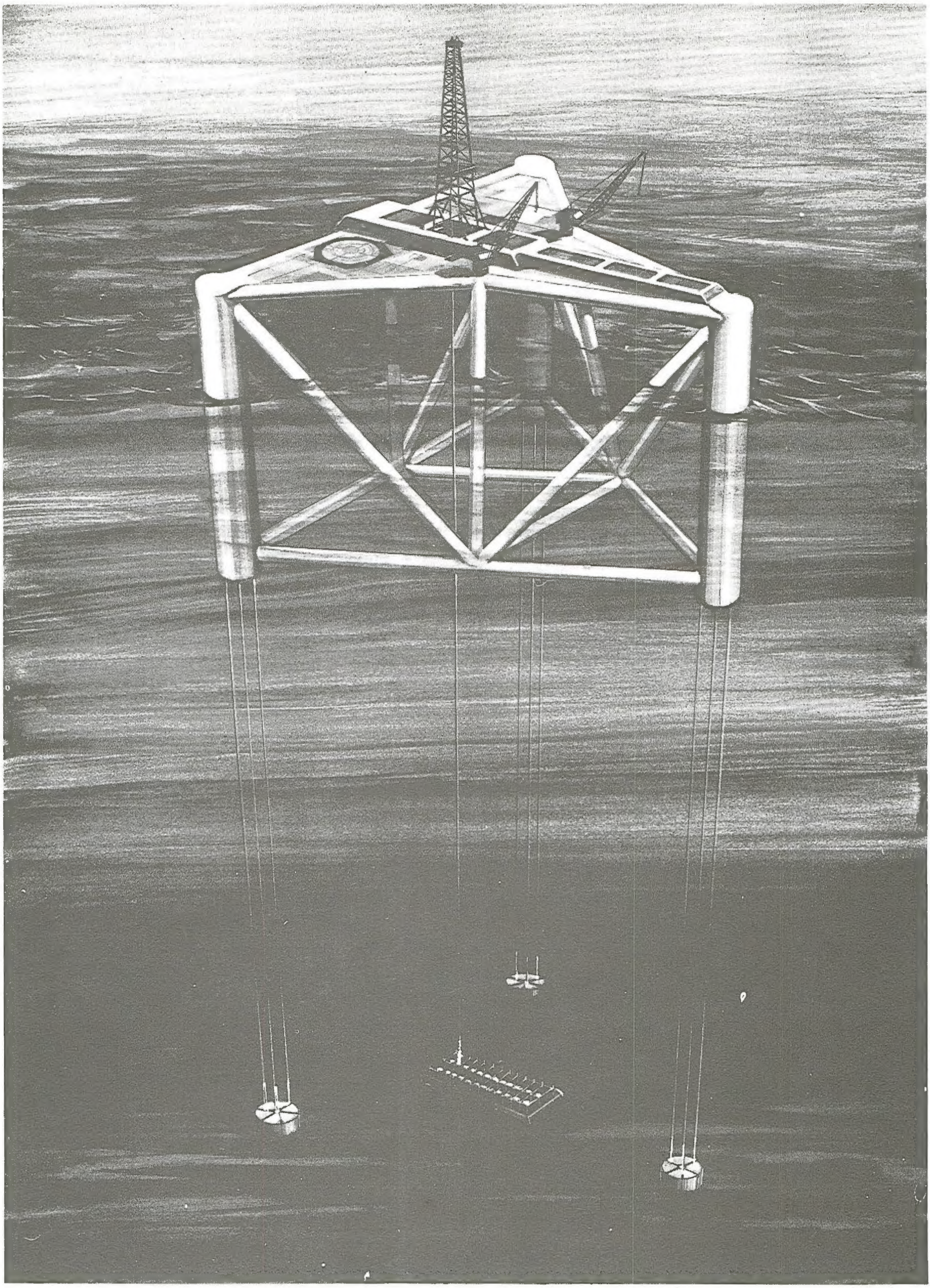
2. Horton, E.E., McCammon, L.B.., Murtha, J.P., and Paulling, J.R., "Optimization of stable platform characteristics," Paper OTC 1553, Offshore Technology Conference, Houston, May 1972.

3. "Principles of Naval Architecture," Society of Naval Architects and Engineers, New York, 1967. (Section VIII, Submarine Pressure Hull Design).

4. K. J. Rawson and E. C. Tupper, Basic Ship Theory, American Elsevier Publishing Co., 1968.

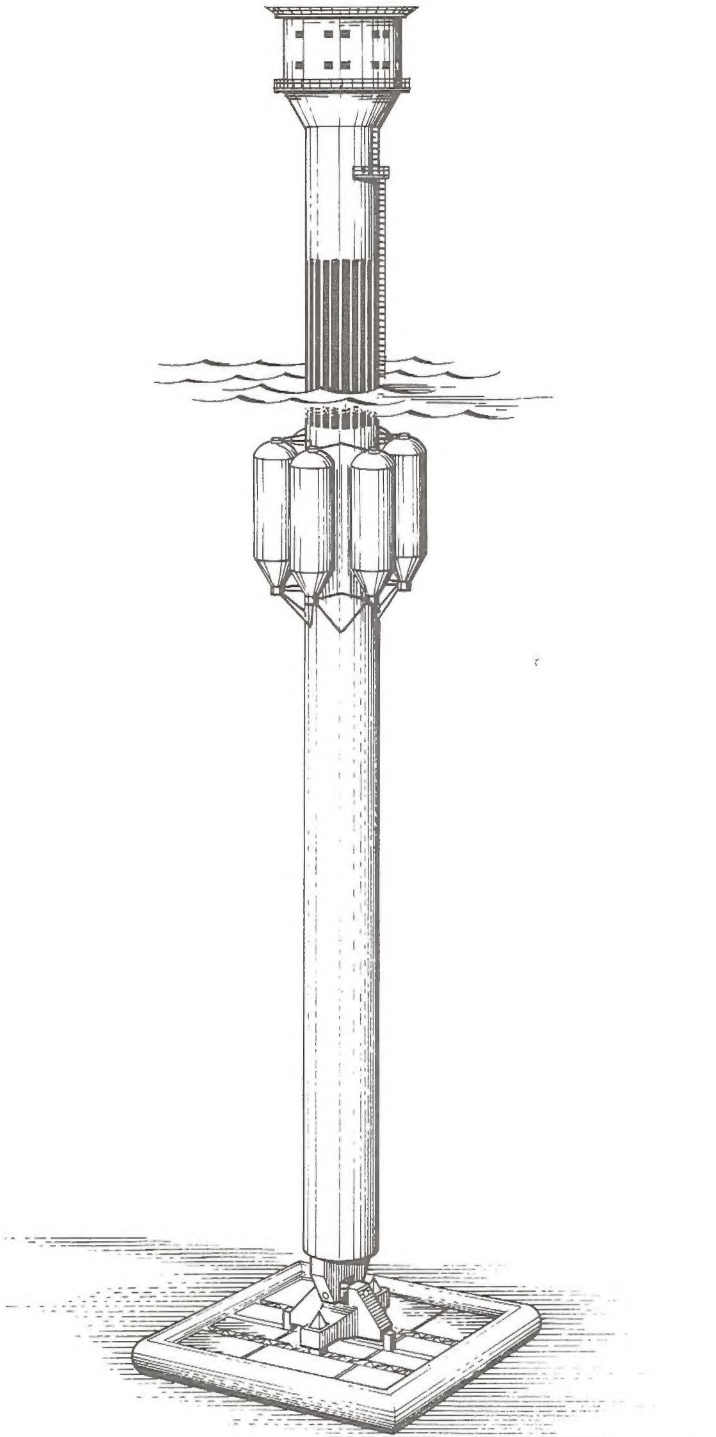
5. J. H. Evans and J. C. Adamchak, Ocean Engineering Structures, Massachusetts Institute of Technology, NSF Sea Grant Project GH-1 M.I.T. Press, 1969.

6. Brewer, J.H., and Shrum, S.J., "Tension-Leg Platform For Deep-Water Drilling To Get A Sea Test In 1974", "Oil & Gas Journal", October 8, 1973 edition.

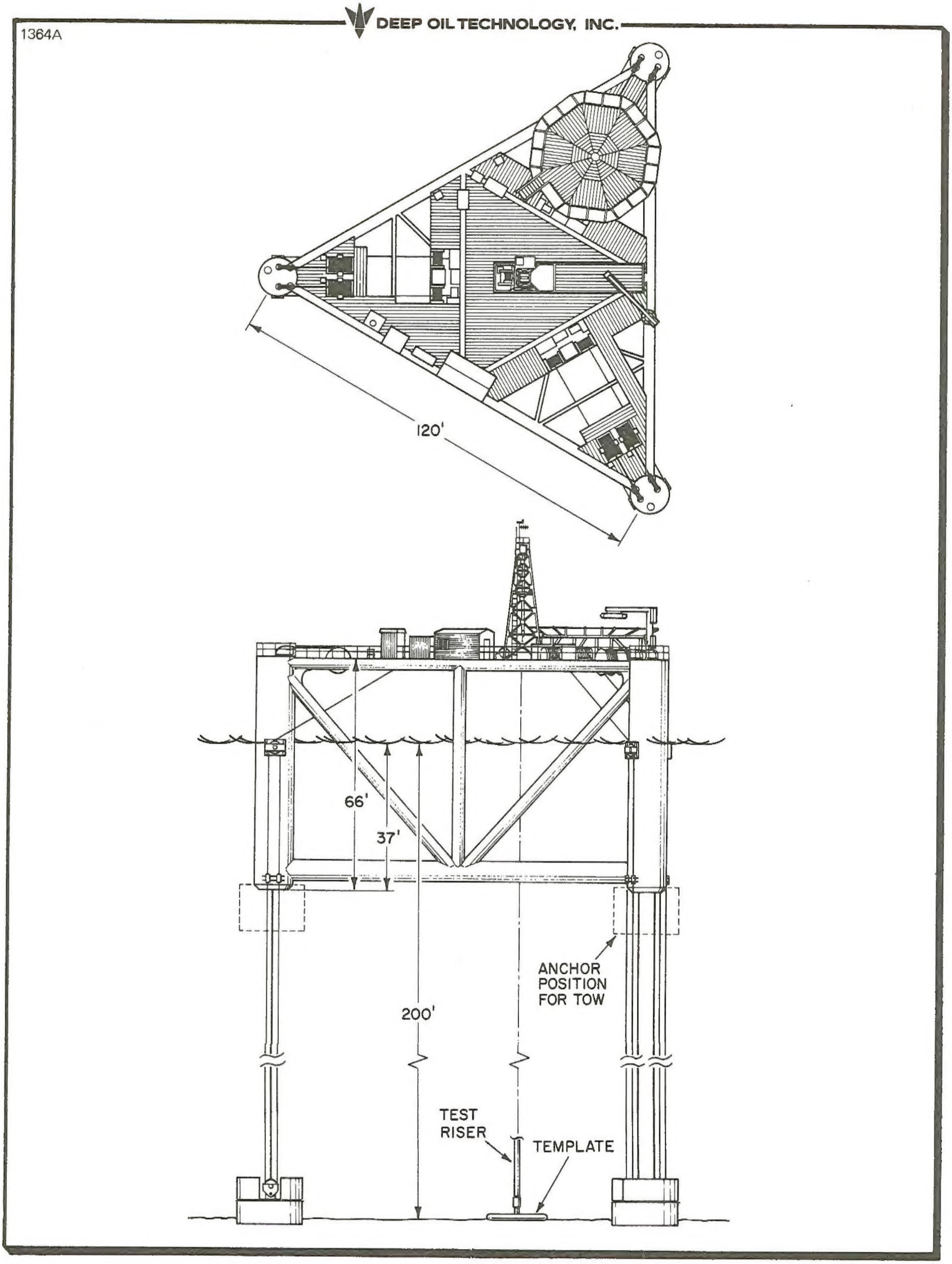


Drilling and Production Platform

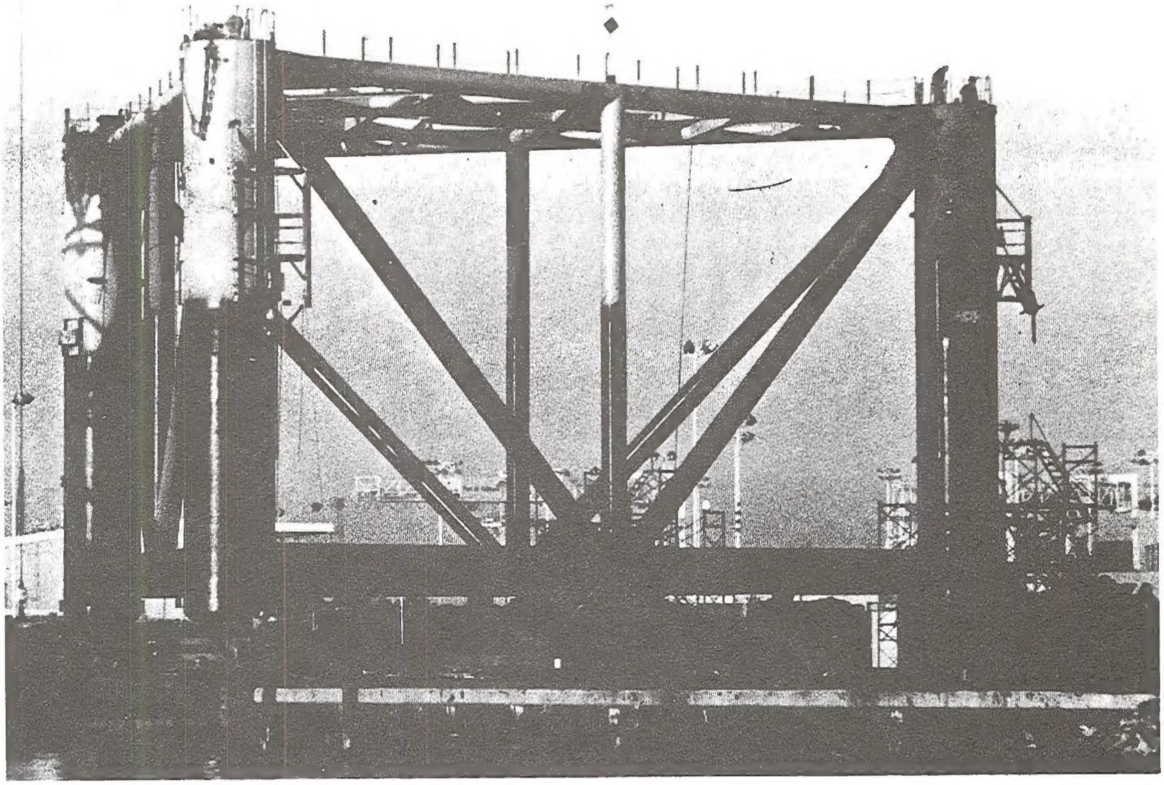
1201A



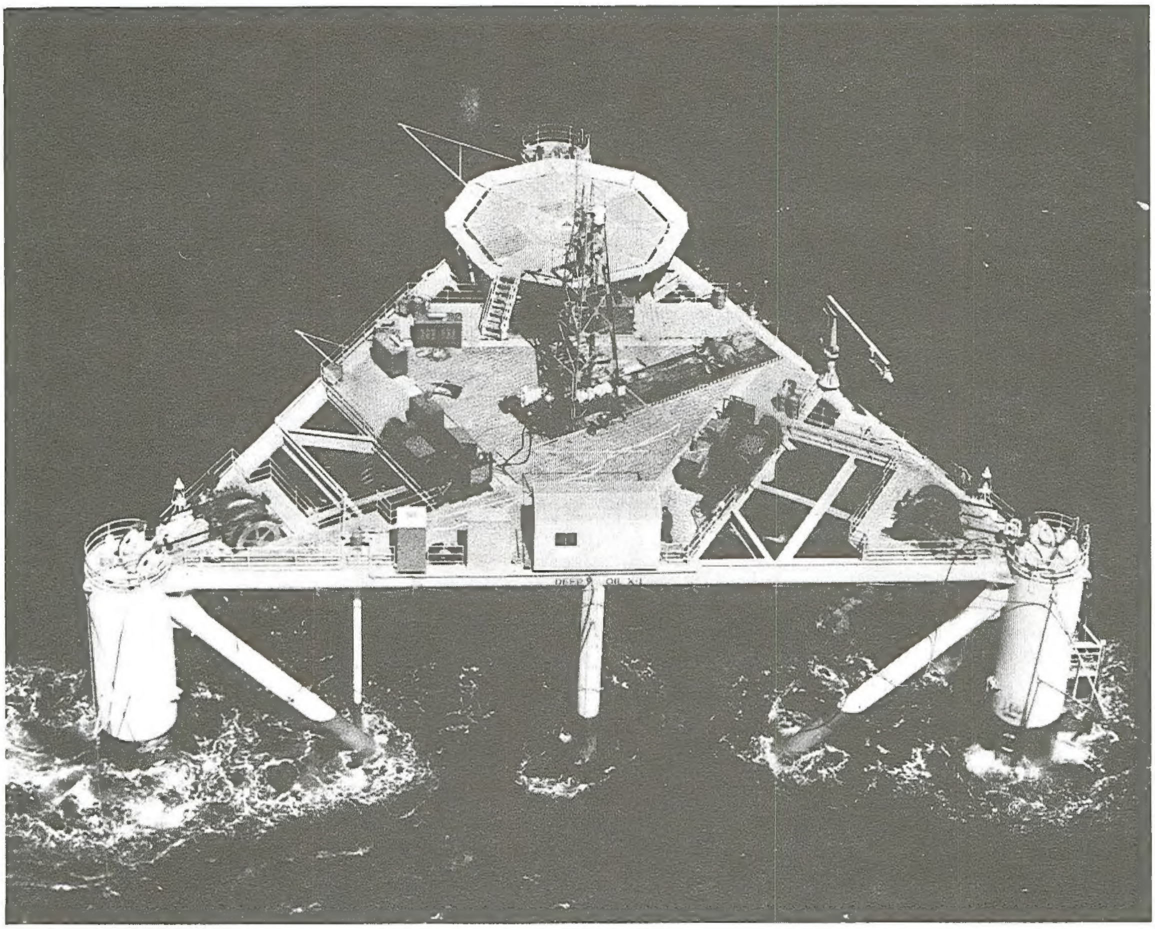
Oscillating Platform



Test Platform



Test Platform Construction and Outfitting



Test Platform, Seaward Side of Catalina Island (200-Ft Water Depth)

H-35-W8

Bureau of Land Management

Outer Continental Shelf Office

Hearings May 6 - 8, 1975

Los Angeles, California

Mr. William E. Grant, Manager
OCS Office
Bureau of Land Management

Dear Mr. Grant, And Panel Members

My name is A. Howard Hogue. I am Vice President of Tidewater Marine Service, Inc. - West Coast.

Coming before the commission toward the end of the agenda, I will not take the time to reiterate all of the many worthwhile points in favor of offshore leasing which have been brought out by other speakers at this forum.

The techniques and expertise inherent in the oil industry to carry out the task of developing leases in federal waters have been well presented by those whose background is far better than my own in those fields.

I would like to point out, however, having spent 15 years in the offshore boat service industry supporting all phases of the offshore oil industry in both state and federal waters off Southern California, that it has a safety record, both relating to the number of spills and personnel injuries, which is second to none.

Hundreds of wells have been drilled, and thousands of tanker dockings and undockings safely carried out, with only one major incident, which should not be the cause for the continued restraint on going forward with the lease or development of the federal offshore areas off the West Coast, when the products of these wells will bring so many benefits to California and these United States.

Last week, the California State Lands Commission wisely voted in favor of authorizing 17 new wells north of Santa Barbara which will not only generate much needed revenue for the State and the County of Santa Barbara, but will provide substantial new employment and input of purchasing power to the local area which is most needed as California now exceeds the 10 per cent unemployment ratio.

A cursory survey conducted by myself, which only hit the tip of the iceberg, so to speak, reveals over 450 service companies whose success or failure directly relates to offshore oil development.

Untold numbers of other business entities, great and small, benefit from the sale of goods and services; encompassing land and water transportation, hardware, and a multitude of other forms of supplies and services which go into offshore oil development.

In closing, not only do we stand to benefit from the alleviation of international problems, federal and state economic problems, but at the same time we generate a great deal of improvement of our local economy, which is greatly needed at the present time.

Howard Hoget
Vice President
Tidewater Marine Serv Inc.
109 E. Haley St
Santa Barbara, CA
93101

H-35-W9

C.L.PECK CONTRACTOR
3303 Wilshire Boulevard Los Angeles, California 90010 Telephone (213) 381-6711

May 6, 1975

Bureau of Land Management
Room 7663 Federal Building
300 North Los Angeles Street
Los Angeles, California 90012

Attention: Mr. Grant

Dear Mr. Grant:

I am scheduled to appear at 3:10 for the May 8 meeting concerning the Outer Continental Shelf Project.

Unfortunately I have a business matter which requires my presence and will not be in town on that date.

Because of the extreme importance of this matter and my strong convictions concerning it, I am hopeful that you will accept the enclosed letter in lieu of a personal appearance by me.

Most sincerely,

Clair L. Peck - Chairman
C. L. Peck Contractor

CLP/d

Enclosure

H-35-69

C.L.PECK CONTRACTOR
3303 Wilshire Boulevard Los Angeles, California 90010 Telephone (213) 381-6711

May 6, 1975

Bureau of Land Management
Room 7663 Federal Building
300 North Los Angeles Street
Los Angeles, California 90012

Attention: Mr. Grant

Dear Mr. Grant:

OUTER CONTINENTAL SHELF PROJECT

C. L. Peck Contractor has been active in the construction industry for sixty-one years and I am well acquainted with the industry's problems, opportunities and responsibilities. The construction industry is one of the three major employers in the state of California. Our projects provide jobs and paychecks for thousands of professional people, and hundreds of thousands of skilled and unskilled workers. When we are busy, employment is high . . . money circulates. When we are not busy, the waiting lines grow longer at the Welfare Offices and the hiring halls. Lately, as an industry, we have not been busy.

One of the reasons the construction industry has not been busy in the recent past is an outgrowth of the public's growing concern for the environment. This is certainly an understandable concern. It is a necessary concern, but it has resulted in the delay of numerous worthy projects and the cancellation of many others.

Despite what our critics too frequently imply, the construction industry is not insensitive to the environmental considerations. Due to the discipline of the free market, we are perhaps more keenly aware than most, of the environmental impact a given project actually has. Poorly conceived projects do not succeed financially.

In the past when environmental resources seemed limitless, there were instances when those resources were rather thoughtlessly utilized. Today, with our environmental resources diminishing, it is apparent to every thoughtful person . . . including those in the construction industry . . . that we must utilize them wisely . . . there must be an appropriate balance between what we give and what we get, so far as the environment is concerned, But, because our business begins to suffer almost immediately, the construction industry has been in a particularly sensitive position to feel the economic impact of an over-reaction to environmental considerations. I think the public has over-reacted. Actually I think we should have over-reacted to achieve an appropriate balance between the economic and environmental considerations. Initially over-reaction was undoubtedly necessary. But, if we are to revitalize our economy, we must begin to bring the matter into balance now . . . and quickly.

What about the impact on our economy if the Outer Continental Shelf Project doesn't go forward? Do the opponents of this OCS Project adequately understand the ultimate result of leaving our national economy and our national defense exposed to foreign nations? These nations control the oil we must import. Do the politicians who oppose the OCS Project understand that thousands of jobs and the financial security of many families are almost totally dependent on adequate resources of energy to fuel our economy? We have an Environmental Impact Report to evaluate the environmental risks of proceeding with this project. There should also be an Economic Impact Report to make clear the serious financial threat we face if we do not do everything we can to become self-sufficient in energy. And, for the short term at least, that means self-sufficiency in oil.

The Environmental Impact Report indicates that the environmental risk of going forward with the project is minimal. I'm confident that an Economic Impact Report would indicate that the financial impact from failure to proceed with the project would be at best unpleasant . . . and at worst catastrophic.

I urge that we accept the environmental assessment as reasonable, rational and sound . . . and go ahead with this project as quickly and as safely as possible.

Sincerely,

Clair L. Peck - Chairman
C. L. Peck Contractor

CLP/d

H-35-W10

Chartered June, 1923

LOS ANGELES
BUILDING AND CONSTRUCTION
TRADES COUNCIL

Affiliated with the BUILDING & CONSTRUCTION TRADES DEPT., AFL-CIO

PHONE 483-4222/1626 BEVERLY BOULEVARD/LOS ANGELES, CALIFORNIA 90026

J. A. CINQUEMANI
Executive Secretary

May 8, 1975

U. S. Department of Interior
Los Angeles Convention Center
Los Angeles, California

RE: OUTER CONTINENTAL TESTIMONY

Gentlemen:

On behalf of the Los Angeles Building and Construction Trades Council, I would like to voice our support regarding Federal proposals to open the off-shore area outside the three-mile limit for oil and gas exploration and production.

We in labor in the construction industry have a tremendous dependence upon oil and gas for our well-being. A construction worker's job is one of mobility in that in most instances he does not report to just one job site throughout the year but reports to many job sites in various parts of Los Angeles County. He, therefore, is dependent upon fuel for his automobile in order to get to his place of employment. During the last energy crisis, the men in the building trades suffered greatly because of the shortage of fuel due to the foreign embargo. We are firmly convinced that we must establish a position which will leave us free from the whims of the foreign oil cartel in order to alleviate reoccurence of the energy crisis we faced last year.

There can be no doubt in anyone's mind that the exploration and production of oil and gas in the outer continental shelf will create more jobs for people not only in the labor movement of the construction industry, but for all segments of the economy. At a time when my members are over 35% unemployed, we feel that it is incumbent that projects such as the off-shore exploration begin immediately.

We are cognizant of many of the environmental concerns but are convinced that the state of the art of off-shore drilling has evolved to a point where chance of a spill is infinitesimal. We feel it is time for the individual agencies of this Country to place emphasis on creating more jobs rather than halting the economy in the guise of protecting the environment.

The Los Angeles Building and Construction Trades Council urges you to act favorably upon the Federal proposals to open off-shore oil and gas exploration.

Respectfully yours,

Ja Cinquemani

J. A. Cinquemani, Executive Secretary
L. A. Bldg. & Constr. Trades Council

JAC:das

H-35-W11

BUILDING INDUSTRY ASSOCIATION
OF CALIFORNIA, INC.
1571 BEVERLY BOULEVARD · LOS ANGELES, CALIF. 90026 · PHONE (213) 625-5771
THE LARGEST REGIONAL BUILDERS ASSOCIATION IN CALIFORNIA

May 8, 1975

United States Department of the Interior
Los Angeles Convention Center

Gentlemen:

On behalf of the Building Industry Association of California, I would like to express our support regarding Federal proposals to open the off-shore area outside the three-mile limit for oil and gas exploration and production.

The building industry is very dependent upon adequate supplies of oil and gas in our business. Many of the products used in construction of housing and other facilities have an oil base. When we experience shortages of oil, such as we experienced last year, the price of material used in the construction industry skyrockets. This increase in cost is eventually passed on to the consumer of our projects. The end result is that many people who are desirous of obtaining decent housing are priced out of the market. We feel that the opening of off-shore oil and gas exploration and production will go a long way in alleviating the problems created by oil shortages.

We are also facing the problem of having enough energy supply to heat and cool the homes that we produce. We in the construction industry feel that we cannot continue as a nation to rely upon foreign sources of oil and gas for our energy supplies. We must, therefore, develop our own reserves and we feel that one of the best areas of this development exists in the off-shore area outside the three-mile limit.

It is time that the senseless tactics and selfish attitudes of those who hide behind environmental issues be put aside for the well-being of the majority of the citizens of this Country. In a time when we face massive unemployment coupled with record bankruptcies in our industry, people seem to be more concerned with the very-unlikely occurrence of an oil spill rather than with the lives of human beings.

AFFILIATE OF THE NATIONAL ASSOCIATION OF HOME BUILDERS AND CBC CALIFORNIA BUILDERS COUNCIL

The Building Industry Association of California, after carefully weighing all the facts involved with an opening of off-shore oil and gas exploration are firmly convinced that this exploration should take place immediately. We have waited too long and have witnessed too many studies and it is now time for us to get on with the job of providing jobs and protecting the lives of our citizens.

We therefore respectfully urge you to act favorably upon the Federal proposals to open off-shore oil and gas exploration.

Respectfully submitted,

Richard R Wirth

Richard R. Wirth
Director of Governmental Affairs
Building Industry Association of California, Inc.

H-35-12

county of san diego
environmental development agency
1600 pacific highway, san diego, california 92101 (714) 236-2005

allan h. colman
administrator

board of supervisors
jack walsh
first district
dick brown
second district
lou conde
third district
jim bates
fourth district
lee taylor
fifth district
chief administrative officer
frank d. aleshire

May 8, 1975

Mr. Bill Grant
U.S. Bureau of Land Management
300 N. Los Angeles Street
Los Angeles, California

Dear Mr. Grant:

Please accept the attached testimony on offshore oil drilling for your file on the hearings on the Southern California Borderland EIS. This testimony was presented at the earlier hearing on the national program for offshore drilling, and the attached resolution adopted by the San Diego County Board of Supervisors defines the County's position which has not changed since the earlier hearing. This position is in accord with that of the Council of Local Governments of Southern California Concerned with Federal Proposals for Offshore Drilling.

Thank you for your consideration.

Sincerely,

Joan L Werner

JOAN L. WERNER
Special Assistant

JLW:kd

Attachment

planning department
zoning administrator
environmental management
housing authority
citizen planning advisor

RESOLUTION OF THE BOARD OF SUPERVISORS OF SAN DIEGO COUNTY OPPOSING THE PROCEDURES OF THE UNITED STATES DEPARTMENT OF THE INTERIOR LEADING TO THE LEASING OF TRACTS FOR OIL AND GAS DEVELOPMENT OFF THE COAST OF SOUTHERN CALIFORNIA

(1) WHEREAS, the United States Department of the Interior has announced a proposal to lease areas on the Outer Continental Shelf in Southern California adjacent to state tidelands for oil and gas development; and

(2) WHEREAS, the State of California has limited oil drilling from most of the offshore and beach areas adjacent to lands now being considered by the Department of the Interior for development in the federal waters beyond the state's three mile tidelands boundary; and

(3) WHEREAS, the 1972 California Coastal Zone Conservation Act provides for the preparation of long-range plans for the orderly conservation and development of the California coastline, and any move by the Department of the Interior to increase oil development along the coast before the state long-range plans are adopted could seriously compromise state, regional and local planning efforts; and

(4) WHEREAS, the federal Administration's stated position that states and local communities should be primarily responsible for land use planning is inconsistent with the Department of the Interior's proposal to proceed without a long-range coastal zone plan and a coordinated planning effort; and

(5) WHEREAS, oil drilling off the coast of Southern California could have a devastating effect on the coastal environment, especially the beaches and harbors, as the Santa Barbara oil blowout demonstrated five years ago; and

(6) WHEREAS, oil is a finite, irreplaceable resource, and as such this diminishing resource should be reserved to the maximum degree possible for future use pending completion of a national energy policy which could include development of alternate sources of energy and comprehensive conservation programs which will relieve pressure on scarce oil supplies; and

(7) WHEREAS, the projected time-frame of the Department of the Interior for awarding leases is inadequate to prepare, evaluate, and coordinate the studies necessary for an informed decision; and

(8) WHEREAS, additional serious questions remain unanswered and must be addressed before leases are awarded;

(9) NOW THEREFORE BE IT RESOLVED BY the Board of Supervisors that the announced plans to lease federal lands to provide new oil drilling in the Outer Continental Shelf off the coast of Southern California be strongly opposed at this time.

BE IT FURTHER RESOLVED, as follows:

1. Award of leases for offshore oil and gas development in Southern California should not proceed until a comprehensive national, as well as regional, energy policy has been promulgated.
2. The Department of the Interior should timely submit its proposed oil development program to the California Coastal Zone Conservation Commission and other appropriate state, regional and local agencies for their review before any new leases are issued.
3. No leases shall be awarded until Congress has enacted new legislation strengthening existing laws relating to drilling and development on the Outer Continental Shelf.

ADOPTED THIS _______ day of __________, 1974.

TUESDAY FEB 4 1975

COUNTY OF SAN DIEGO

INTER-DEPARTMENTAL CORRESPONDENCE

DATE February 4, 1975

TO: Board of Supervisors

FROM: First District Supervisor

SUBJECT: OFFSHORE DRILLING TESTIMONY

Later this week, the Department of the Interior will hold open hearings on their proposed offshore leasing program, During the three day hearing there will be testimony from scores of private individuals, oil industry officals, environmental organizations, and public officals, My staff, in conjunction with the Environmental Development Agency, has prepared testimony for the County of San Diego.

We have coordinated our presentation with the Council of Concerned Mayors. On the second day of the hearings -Friday- detailed technical and legal testimony will be presented regarding the inadequacies of the draft Environmental Impact Statement. County staff is working closely with representatives of the Council in preparation of the testimony.

In the afternoon, counties and cities will present "political" testimony representing their offical positions. The enclosed statement is consistent with the actions we have taken and is submitted for your approval.

Jack

Jack Walsh

ON MOTION of Supervisor Taylor, ssconded by Supervisor Conde, the Board of Supervisors approves, by following vote:

Ayes: Walsh, Brown, Conde, Bates, Taylor

PORTER D. CREMANS
Clerk of the Board
of Supervisors

By
Deputy

FEB 4 1975

No. 58

PROPOSED TESTIMONY OF THE COUNTY OF SAN DIEGO ON THE SUBJECT OF OFFSHORE OIL.

Mr. Secretary, I am grateful for the opportunity to present the views of the County of San Diego on the development of the energy resources of the Southern California Outer Continental Shelf. In deference to the numerous other parties who hope to testify at this hearing, I will be brief.

The California shoreline is a heritage belonging to all the people of the United States. The people of San Diego feel a special responsibility as guardians of 76 miles of this great treasure. The development of oil resources offshore is a matter of utmost importance, but the value of doing so must always be balanced against the irreperable damage that could be done to our magnificent coast.

In November of 1974, our Board of Supervisors held open hearings on this topic. Representatives of government, the oil industry and environmentalist organizations presented their perspectives eloquently and profusely. Following that hearing, the County of San Diego went on record in opposition to the current offshore oil and gas leasing program that the Department of the Interior has proposed.

Our county has made a $5,000 contribution to the California Conference of Concerned Mayors. This money will be used by the Conference for an independent critique of the Department of Interior's Environmental Impact Statement. Through the Conference, many cities and counties in Southern California have chosen to express their opposition to the leasing program. We support the Conference and endorse the position taken in their presentation this morning.

In drawing up this leasing program, the Federal Government has violated the spirit of New Federalism with its emphasis on decentralization and giving local governments more control. Localities bear the brunt of costs of increased services in support of offshore drilling and are subject to many adverse land use impacts onshore. Yet, it is the Federal Government that reaps huge economic gains from bonus and royalty payments.

The California Coastal Commission is currently preparing a Coastal Plan for submission to the legislature. Under the 1972 Coastal Zone Management Act, Federal shoreline development must conform with local coastal zone management plans. It is indicative of the attitude of the Department of the Interior that O.C.S. leasing schedules are not slated to conform with the deveolping plans of the State of California.

We have directed our County's Washington representative to work closely with Senators Tunney and Cranston on legislation to preserve and safeguard our coastline from adverse impacts as a result of offshore oil leasing.

We have requested that President Ford and the Congress accelerate the development of a comprehensive national energy policy which could serve as the basis for the many crucial energy decisions which our nation faces in the not too distant future.

We have directed our County Counsel to be prepared to intervene in action filed by the California State Attorney General against the U.S. Department of the Interior, which alleges that the decision to lease has already been made and that this violates the National Environmental Policy Act.

We have gone on record in support of numerous bills before the State Legislature which would limit drilling and protect our coastline.

The effect of the current leasing program will be to transfer from public to private ownership billions of dollars worth of our Nation's precious mineral resources. We believe that the Department of the Interior is rushing to lease these resources without a full examination of the consequences. With a little thought to conservation and planning, our Nation can meet the energy challenges of the future and still protect our coast.

H-35-W13

California Trucking Association

GENERAL OFFICE
BURLINGAME, CALIFORNIA 94010
1240 BAYSHORE HIGHWAY
(415) 347-3651

LOS ANGELES, CALIFORNIA 90040
SUITE 1029, 6055 E. WASHINGTON BLVD.
(213) 685-6868

SACRAMENTO, CALIFORNIA 95814
SUITE 516, 926 J STREET
(916) 442-1017

Los Angeles
May 8, 1975

Mr. William Grant
Manager, Pacific Office
Outer Continental Shelf
Bureau of Land Management
300 Los Angeles Street
Los Angeles, California

Dear Mr. Grant:

Transmitted herewith are copies of the undersigned's statement to be made a part of the record in the current hearings on the Southern California Outer Continental Shelf Development Lease and Sale.

Very truly yours,

S. E. Mansfield
General Manager-Southern California

SEM:eh

Enclosure

H-35-W13

STATEMENT
BY
S. E. MANSFIELD
GENERAL MANAGER-SOUTHERN CALIFORNIA
CALIFORNIA TRUCKING ASSOCIATION
AT
BUREAU OF LAND MANAGEMENT HEARINGS
THURSDAY, MAY 8, 1975 - 7:00 P.M.
CONVENTION CENTER, LOS ANGELES

***

MY NAME IS S. E. MANSFIELD. I APPEAR HERE TODAY ON BEHALF OF THE CALIFORNIA TRUCKING ASSOCIATION, 1240 BAYSHORE HIGHWAY, BURLINGAME, CALIFORNIA, WHICH IS AN ORGANIZATION REPRESENTING VIRTUALLY ALL OF THE EMPLOYER OPERATORS OF PUBLIC FREIGHT VEHICLES USING CALIFORNIA HIGHWAYS. OUR MEMBERS ARE LARGE USERS OF FUEL--BOTH GASOLINE AND DIESEL OIL.

THE WORLD-WIDE SHORTAGE OF ENERGY, THE INCREASING USE OF OIL AS A SUBSTITUTE TO DECLINING NATURAL GAS SUPPLIES AND THE GROWTH IN UNITED STATES ENERGY CONSUMPTION WILL UNDOUBTEDLY BE DISCUSSED BY EXPERTS, SO WE WILL NOT COMMENT FURTHER.

THE ECONOMY OF OUR COUNTRY FOR BETTER OR WORSE IN THE SHORT TERM IS TIED TO ENORMOUS QUANTITIES OF OIL. ON THAT EVERYBODY IS AGREED, AND UNTIL VIABLE ALTERNATIVES ARE DEVELOPED WE HAVE NO RECOURSE BUT TO CONTINUE TO DEVELOP ALL OUR VALUABLE OIL RESOURCES WHILE INCREASING EFFORTS TO REDUCE CONSUMPTION WHEREVER POSSIBLE.

EVEN ASSUMING FOREIGN OIL WILL BE AVAILABLE THE NEXT FEW YEARS, OUR MAIN FEAR IS THAT THE DOLLAR OUTFLOW CAUSED BY HIGH PURCHASES OF OIL AND STRESSES WITH OTHER CONSUMING NATIONS WILL JEOPARDIZE OUR STANDARD OF LIVING AND SUBJECT OUR ECONOMY AND SOCIETY TO UNBEARABLE STRAINS.

THE NECESSARY USE OF MAMMOTH TANKERS TO CARRY FOREIGN OIL, REQUIRING CONSTRUCTION OF SUPER-PORTS, ALSO IS OF CONCERN TO US. AT THIS POINT, NONE OF THE SUPER-PORTS HAVE BEEN BUILT IN THE UNITED STATES. IT SEEMS TO US THE NUMBER OF SUCH INSTALLATIONS CAN BE REDUCED IF WE DEVELOP ALL SOURCES OF DOMESTIC OIL PROMPTLY.

THE TRANSPORTATION INDUSTRY IS ESSENTIAL TO OUR SOCIETY. ACCORDING TO FIGURES FROM THE "OUTLOOK FOR ENERGY THROUGH 1975" AS OF JUNE, 1972, TRUCKS AND BUSES ARE ESTIMATED TO USE 22% OF THE CONSUMPTION OF ALL SEGMENTS OF THE TRANSPORTATION INDUSTRY. TOTAL DAILY ENERGY CONSUMPTION OF THE TRANSPORTATION INDUSTRY IN 1970 WAS SEVEN AND ONE-HALF MILLION BARRELS (CRUDE OIL EQUIVALENT), WHICH WILL INCREASE TO 13.1 MILLION BARRELS BY 1985. DEVELOPMENT OF EFFICIENT MASS TRANSIT, WHILE RECEIVING INCREASING COMMUNITY PRIORITY BECAUSE OF LONG LEAD TIME FOR CONSTRUCTION, IS NOT EXPECTED TO AFFECT FUEL CONSUMPTION MATERIALLY UNTIL 1990. IN ANY EVENT, SUCH MASS TRANSIT HAS LITTLE, IF ANY, FREIGHT TRANSPORTING CAPACITY.

Increasing truck efficiency by larger pay loads with relatively little increase in axle weights will be one way to save approximately 17% in fuel consumption.

According to the California Statistical Abstract and the Federal Highway Administration, the number of people served by a truck, determined by comparing California's population with total truck registration, has changed from 25 people served by each truck in 1930 when there were 230,387 trucks registered and 5,711,000 people in the state to a 1971 figure of 10.1 persons served when there were 2,003,005 trucks and 20,265,000 people. More and more, our society is oriented toward the personalized and rapid service which only highway transportation can provide.

Suggested alternatives for the movement of freight cannot meet the flexible service requirements of manufacturing plants, agricultural producers and a myriad of other users of truck service now available to every community from the largest to the smallest crossroads in California. Motor trucks mean a lot to the economy of California--not only in the transportation they provide but in the sale and servicing of vehicles. Direct wages and salaries in 1971 to Californians in trucking was $11,721,214,450. Everybody has an interest in keeping the wheels rolling. Lack of fuel will rapidly be translated into a transportation crisis followed by an economic crisis.

THE ONLY SENSIBLE COURSE WOULD SEEM TO BE TO INCREASE DOMESTIC PRODUCTION. THIS SHOULD START WITH TAPPING KNOWN OIL FIELDS, BUILDING THE ALASKAN PIPELINE AND ENCOURAGING BY APPROPRIATE MEANS INCREASED EXPLORATION FOR NEW OIL FIELDS IN THE CONTINENTAL UNITED STATES. ONE IMPORTANT SOURCE OF DOMESTIC OIL AND READILY AVAILABLE IS THE COASTAL OFF-SHORE FIELDS ON THE GULF AND WEST COAST IN VARIOUS STAGES OF DEVELOPMENT. WE APPEAR TODAY IN SUPPORT OF THE PROPOSED PLAN OF DEVELOPMENT FOR THE SOUTHERN CALIFORNIA OUTER CONTINENTAL SHELF LEASE SALE.

WE UNDERSTAND THAT PROJECTED RESERVES OFF SOUTHERN CALIFORNIA WATERS TO BE SIX TO NINETEEN BILLION BARRELS, WITH GAS RESERVES IN THE NEIGHBORHOOD OF 30 TRILLION CUBIC FEET. WE SUGGEST THESE RESERVES WILL BE IMPORTANT IN MEETING NATIONAL REQUIREMENTS.

APPARENTLY, THERE IS AGREEMENT NEW SOURCES OF FUEL ARE NEEDED IF WE ARE TO BECOME SELF-SUFFICIENT, WHICH IS A VITAL NATIONAL OBJECTIVE FOR THE STANDARD OF LIVING, COMFORT AND LIVELIHOOD OF EVERYONE. OBJECTIONS TO THIS PARTICULAR PROJECT ARE BASED ON A FEAR OF ENVIRONMENTAL DAMAGE ARISING FROM SPILLS. WE ARE CONVINCED THAT THE PETROLEUM INDUSTRY IS NOT INTERESTED IN HARMING THE ENVIRONMENT BECAUSE OF THE TREMENDOUS COST. IF THE INDUSTRY WAS NOT CONVINCED THE PROJECT COULD BE CARRIED OUT ON VIRTUALLY A NO-RISK POTENTIAL, THIS HEARING WOULD NOT HAVE BEEN HELD TODAY FOR LACK OF APPLICANTS. THE

COST OF A PLATFORM, ETC., IS TOO GREAT TO JEOPARDIZE, AND THE FINANCIAL FUTURE OF THE OPERATOR IS TOO IMPORTANT TO ALLOW FOR A MAJOR SPILL.

WE URGE SUPPORT OF THE OUTER CONTINENTAL SHELF DEVELOPMENT CONTRACT.

###

H-35-W/H

WESTERN OIL AND GAS ASSOCIATION
609 SOUTH GRAND AVENUE • LOS ANGELES, CALIFORNIA 90017
(213) 624-6386

BY MESSENGER

May 21, 1975

Mr. William E. Grant
Manager
Pacific Coast OCS Land Office
Bureau of Land Management
300 N. Los Angeles Street
Los Angeles, California 90012

Dear Mr. Grant:

It is my pleasure to submit eight copies of a detailed critique of the Draft Environmental Statement 75-8, Southern California OCS. We would appreciate your making the critique and the other information accompanying this letter part of the hearing record.

The critique was prepared for the Association by the consulting firm of Dames & Moore with direct assistance from member companies of this Association. The document has been carefully reviewed by industry and approved for submission on their behalf.

Also, enclosed are comments on certain points raised during the course of the May 6-8 hearings which we believe merit your consideration. They concern:

(1) Comments on the arguments made with respect to the use of contracts rather than leases.

(2) Elimination of closeup areas.

(3) Payment of claims in Santa Barbara.

(4) The claim that we should wait for the California Coastal Plan or for a Federal Energy Plan.

I have also enclosed for the hearing record a critique of points in the Draft Environmental Impact Statement concerning fate and effects of oil in the marine environment. This material was prepared by Dr. F. T. Weiss, Shell Development Company, Bellaire Research Center, Houston, Texas. Dr. Weiss was a member of the WOGA panel of witnesses which presented testimony on Wednesday, May 7. A copy of Dr. Weiss's testimony, which was only summarized at the hearings because of time considerations, is also enclosed. I believe you may be interested in the extensive bibliography attached to his Statement and identified as pp.11-15 of that document.

Our industry greatly appreciated the thoughtful consideration given its views as expressed at the public hearing. It is our hope that the enclosed material will also prove helpful in the development of the Final Environmental Impact Statement. We stand ready to be of assistance at any time.

Very truly yours,

Harry Morrison

HWW/jt

HARRY MORRISON
Vice President
and General Manager

Enclosures

COMMENTS ON CERTAIN POINTS WITH RESPECT TO OCS HEARING

1. (Comments on the Arguments Made With Respect to the Use of Contracts Rather Than Leases.)

It was argued by Mr. Cory, and by others, that the Government should use contracts like that given to THUMS in Long Beach rather than leases in the present form. Two claims are made: one being that a higher return would be received by the State, and a second that the State would have better control over operations.

The State of California has used contracts, rather than leases, only for the Wilmington Field. The Wilmington Field was thoroughly known at the time contracts were offered for bid. Indeed, it was characterized by some old-timers as a tank of oil in the ground waiting to be pumped. That oversimplifies the matter, but it is quite certain that the risk that there would not be oil there in substantial quantitities was zero. It is also a fact that the Wilmington Oil Field is located immediately next to a major refining complex, designed for the use of California crude; hence, that it could be expected to bring a very high price, whether on a bonus bidding system or on a percentage of profit system of bidding. It did. There is no earthly reason to believe, however, that an offshore contract at some distance from the shore would produce comparable bids.

In order to utilize a contract system, and obtain anything other than a very low net profit bid, the Government would have to assume the expense of actual exploration and operations. The risk is quite high that the effect would be a very substantial loss in the amount earned by the Government, particularly if the Government did its own exploring.

If the Government reimburses the explorer and developer for expenses, thus taking the risk itself, it eliminates a major motive for diligence in exploration. A company which has spent many millions of dollars for a lease is certain to check every practical possibility before surrendering it. That is the only way it can recover its money. A company which is exploring on a basis where it is fully reimbursed by the Government has no such pressure on it.

If, on the other hand, the contractor is required to incur the risk of spending exploratory and development money but he has no bonus commitment, he will certainly, on a speculative prospect, bid much less than for a sure thing like the Wilmington Field.

And the incentives created would point in the direction of testing only the most attractive prospects, in contrast with the bonus system, where every reasonable prospect needs to be tested given a large bonus paid. There is no system which is likely to do as good a job of getting every prospect thoroughly checked as the present one of leasing on a bonus basis.

The idea that the Government lacks control under present circumstances is simply wrong. Present regulations provide for quite thorough control. The only legal restriction is that the Government cannot condemn the leases -- i.e., take them back or decide there will be no development, without paying just compensation to the lessees. But a contract which was terminable at the will of the Government would be highly unattractive, and would not be likely to encourage much in the way of bidding. A contract which was not terminable at the will of the Government would be subject to the same problem.

2. (Elimination of Close-up Areas.)

We were asked what the effect would be if some of the nearer acreage was eliminated. We cannot comment on the value of particular areas because that would require an exchange of competitive information between the companies and no such exchange exists. Obviously, the close-in areas in shallower water could be developed more swiftly, and produced at an earlier date, which would provide some relief from the present foreign exchange situation at an earlier date.

3. (Payment of Claims in Santa Barbara.) The companies stipulated, very shortly after the spill, to a Court Order which provided for payment of actual damages without proof of fault. The claims of the State of California, the City of Santa Barbara and other surrounding cities, neighboring property owners and businesses in the area have all been settled. A settlement with respect to fishermen's claims has been worked out and is awaiting approval by the Court. So far as we are aware, there is no instance over the last several years where a substantial oil spill has been produced by oil company operations wherein payment for any damages incurred was refused. This is a wholly fictitious problem.

4. (The Claim That We Should Wait for the California Coastal Plan or for a Federal Energy Plan.)

The California Coastal Plan will be written up by January 1, 1976. The Legislature then has to decide what to do with it. Proposition 20, which provided for creating the California Coastal Commission, did not determine what effect the Coastal Plan when finally adopted would have and at this juncture, no one knows whether a plan will be adopted in 1976; whether it will be a general guide as to policy without legal effect; whether it will be a zoning system; and finally whether the Plan, if any, finally adopted by the Legislature will bear any resemblance to that now being formed. Waiting for it would involve inaction for a period of years without any opportunity to tell at this point in time what the situation would be eventually. There is also no way of knowing that there will not be some other planning process going on at that time so that a similar claim could then be made with equal justification.

The same comment has to be made with respect to an Energy Plan. At the present time, one has no way of knowing whether Congress will adopt a National Energy Plan, and what effect it will have, if they do.

H-35-53a

CRITIQUE OF POINTS IN DRAFT ENVIRONMENTAL IMPACT STATEMENT CONCERNING FATE AND EFFECTS OF OIL IN THE MARINE ENVIRONMENT

Addendum to "Fate and Effects of Spilled Oils" by F. T. Weiss, Shell Development Company, Bellaire Research Center, Houston, Texas. Prepared for Public Hearing, May 6-8, 1974, in the Draft Environmental Impact Statement describing the Southern California Outer Continental Shelf.

F. T. Weiss
May 13, 1975

HYDROCARBON UPTAKE AND RELEASE

Volume 2 of Draft Environmental Statement

Page	Statement
96	"Blumer et al. (1970) reported that when oysters are exposed to oil-water mixtures, they selectively accumulate in their tissues a wide variety of petroleum hydrocarbons which are retained indefinitely."
116	". . . there is still scientific debate as to whether oysters can cleanse themselves when returned to clean water."
179	"Blumer noted that the oil in specimens observed from a Massachusetts oil spill remained relatively unchanged in composition or quantity."
181	"Estimates vary from several months for complete depuration to six months with no depuration."

①

Volume 3 of Draft Environmental Statement

Page	Statement
621	"Blumer's (1969) studies on the fate of organic compounds in the marine food chain found that hydrocarbons, once they are incorporated into a particular marine organisms, are stable, regardless of their structure. . ."
628	"Hydrocarbons may not only be retained, but they may also be concentrated and become potein bound."

National Academy of Sciences Report

Page	Statement
106	"Some organisms such as mussels and oysters have been shown to eliminate most absorbed petroleum hydrocarbons when placed in clean water."

The evidence on elimination of hydrocarbons has now been so commonly observed by many laboratories with literally hundreds of test animals that it is an important question as to the authenticity of Blumer's 1969 studies. These studies were made with, literally, three oysters in a tank containing flowing seawater. Later reports from Woods Hole have indicated that their seawater system was not always clean.

① For instance, the WHOI-72-74 (September 1972) Report by Atema and Stein on Lobster Behavior contains the statement on page 41, "The results of hydrocarbon analyses show that there were probably some petroleum hydrocarbons present in the experimental tanks prior to exposure to an oil-slick. This could have been the result of contamination of the natural seawater in the experimental tanks . . ." In the paper by Stegeman and Teal on Accumulation and Release of Hydrocarbons by the Oyster (Marine Biology, 22, 37-44; 1973) it is pointed out that the sea water flowing into the "clean" tank contained an impurity of hydrocarbons and also a contaminant probably derived from the tubing through which the water flowed, the latter contaminant having a distinct peak in the gas chromatogram.

CARCINOGENIC EFFECTS

Volume 2 of Draft Environmental Statement

Page	Statement
46	"Oil spills may be responsible for . . . sublethal effects of (. . . carcinogenicity . . .)."
70	"A far more serious effect is the potential accumulation in human food of long-term poisons derived from crude oil, for instance, carcinogenic hydrocarbons."
75, 89	"sublethal, carcinogenic, and food chain uptake inpacts are largely unknown but have the possibility of being the most severe effects of oil production in the marine environment."

Volume 3 of Draft Environmental Statement

②

Page	Statement
618	"Benzpyrene, 1, 2 benzanthracene and alkylbenzanthracene have been isolated from crude oil and their carcinogenic effects on animals and man demonstrated (Blumer, 1970, p. 4)."
622	"A literature search and evaluation conducted for the U. S. Coast Guard by Battelle Memorial Institute (1967) noted that shellfish, although alive, may be unfit for consumption because of the carcinogenic hydrocarbon 3, 4 benzpyrene found in their bodies."

National Academy of Sciences Report

Page	
106	"Although our information is limited, the effect of oil contamination on human health appears not to be cause for alarm."

The Academy report points out that the polynuclear hydrocarbons considered to be carcinogenic are commonly present at low concentrations in a large variety of vegetables, grains and other foods.

Blumer's 1970 reference is to a paper entitled "Scientific Aspects of the Oil Spill Problem" presented at a NATO Conference. A paper with the same title was published in Environmental Affairs, 1, April 1971 pages 54-73. In this paper under the subtopic "Oil and Cancer" reference ② is made to a paper by Carruthers, Stewart and Watkins (Nature, 213, 691-692; 1967). The Nature article states that a private communication from Dr. Woodhouse, University of Birmingham, showed that extracts from some fractions of Kuwait oil were carcinogenic. No details are given, but it is highly unlikely that human studies were made.

BEHAVIORAL EFFECTS

Volume 2 of Draft Environmental Statement

Page	Statement
85	"Feeding, reproduction, and social behavior in fish and lobsters have been disrupted by soluble aromatic derivatives as low as 10-100 parts per billion."
86	". . . the unpublished work of Todd and Atena (Woods Hole . . .). They worked with behavior patterns of yellow bulkheads and found that the fishes' complex, chemically-mediated social behavior developed high intensity conflict behavior when exposed to water soluble fractions of Kuwait crude oil."
169	"Blumer (1972) discussed the fears that oil pollution may interfere with these fundamental biological processes by masking or blocking, or by mimicking natural stimuli (resulting in false responses."
③ 169	". . . the observations of Takahaski and Kittridge (1973) on crab behavior. Crabs, exposed to water-soluble extracts of crude oil, failed to exhibit feeding behavior or mating behavior responses when given appropriate chemical stimuli."
170	"Rice (1973) concluded from laboratory experiments that salmon fry had the capability of detecting sublethal concentrations of oil and that they might avoid areas contaminated when sublethal levels of oil, which would result in confused and nonadaptive migratory behavior."

Much of the material on behavior effects indicates speculations and not firm data.

There are some publications including one by Atema and Stein of Woods Hole. These are -

"Sublethal Effects of Crude Oil on Lobster Behavior",
WHOI-72-74 (September 1972)

and

"Effects of Crude Oil on the Feeding Behavior of the Lobster", Environmental Pollution, 6, 1974 (pages 77-86).

Neither is referenced in the Draft Environmental Statement. The data indicate that a suspension of 10 ppm of crude oil in water causes a doubling of the delay period between noticing food and going after it. They note that the water soluble fraction of this crude oil alone does not have a noticeable effect on the behavior and feeding times.

---

③ In the paper of Rice (1973) no effects were found at levels of 89 ppm, 8.8 ppm and 0.75 ppm with three groups of salmon fry. In the discussion on solubility (page 4 of F. Weiss "Fate and Effects of Spilled Oils") it is pointed out that water column concentrations of hydrocarbons, even in oil-contaminated regions, are in the part per billion range.

The bibliography does not contain the reference to Takahaski and Kittridge (1973). In my files there is a preprint given to me by Dr. Kittridge entitled "Sublethal Effects of the Water-soluble Component of Oil; Chemical Communication in the Marine Environment" by Takahashi and Kittridge. This work was partially funded by the office of Naval Research to whom Kittridge reported June 1973, Report AD 762-047 "The Effects of Crude Oil Pollution on the Behavior of Marine Invertibrates." In both these reports the levels of crude oil in water were 10,100 and 1000 ppm.

STATUS OF INFORMATION

Volume 2 of Draft Environmental Statement

Page	Statement
44	". . . the known information on oil spill impacts is incomplete and often ineffective, but we must indicate these weaknesses and scientific disputes and do the best we can with the information at hand."
70	". . . we are rather ignorant of long-term effects."

③

Volume 3 of Draft Environmental Statement

Page	Statement
618	"A study of the available information on potential effects of oil pollution reveals more unknowns than proven conclusions."

National Academy of Sciences Report

Page	Statement
106	"Although our information is limited, the effect of oil contamination on human health appears not to be cause for alarm."

ENTRY OF HYDROCARBONS INTO FOOD WEB

Volume 2 of Draft Environmental Statement

Page	Statement
67	"In each of these three phases (floating, droplets, solute) the oil has the opportunity to damage marine organisms and/or enter the marine food web."
69	"The fish and filter-feeders may in turn be eaten by larger predatory animals, establishing the potential for a classic example of biological magnification . . ."
70	"Blumer then points out that hydrocarbons are taken up into the food chain and through the process of biological magnification can be concentrated in marine species used by man for food."
① 75, 89	"sublethal, carcinogenic, and food chain uptake impacts are largely unknown, but have the possibility of being the most severe effects of oil pollution in the marine environment."
97	"This means the ingredient for food chain accumulation is present and favors the ability for ample magnification."
116	"There is, at present, no evidence that petroleum hydrocarbons are magnified in higher levels of the food chain through consumption of contaminated oysters or fish."
117	"Hydrocarbons ingested by marine organisms . . . . can be transferred from food organisms to predators and possibly to humans."
258	"There is a possibility that hydrocarbons may build up in the food chain and become accumulated in tissues similar to DDT."

Volume 3 of Draft Environmental Statement

Page	Statement
621	"hydrocarbons, once they are incorporated in a particular marine organisms, . . . may pass through many members of the marine food chain . . . . This is a situation similar to the chlorinated hydrocarbon group of pesticides . . ."
① 621	". . . such feeding activity does concentrate hydrocarbons in organisms that in turn are eaten by larger animals and the oil thus enters the food chain."

National Academy of Sciences Report

Page	Statement
106	"There is no evidence, however, for food web magnification of petroleum hydrocarbons in marine organisms."

F. T. Weiss, Shell Development Company

Dr. Weiss submitted comments concerning conclusions about hydrocarbon uptake, carcinogenic effects and entry of hydrocarbons into the food web.

Disposition

(1) For comments concerning food chain magnification, see response to comments submitted by Dames & Moore.

(2) For comments concerning the carcinogenicity of hydrocarbons, see response to comments submitted by the Southern California Council of Local Governments, Section IX.A.5. The statement of The National Academy of Sciences (p.106) has been added to Section III.D.6.

(3) Dr. Weiss indicates that much of the material cited on oil induced behavior studies are speculative and not firm data. This is true of much of the scientific literature on this subject.

We have added mention of the papers by Atema and Stein and the comments of Rice (1973) to Section III.D.6.

5. OTHER PUBLIC COMMENTS

ANCHORAGE
ATLANTA
BETHESDA
CHICAGO
CINCINNATI
CRANFORD
DENVER
FAIRBANKS
HONOLULU
WASHINGTON, D. C.
HOUSTON
LOS ANGELES
NEW YORK
PHOENIX
PORTLAND
SALT LAKE CITY
SAN FRANCISCO
SANTA BARBARA
SEATTLE

DAMES & MOORE
CONSULTANTS IN THE ENVIRONMENTAL AND APPLIED EARTH SCIENCES

CALGARY
GUAM
JAKARTA
JOHANNESBURG
LAGOS
LONDON
MADRID
VANCOUVER, B. C.
PERTH
SEOUL
SINGAPORE
SYDNEY
TEHRAN
TORONTO
TOKYO

SUITE 1000 · 1100 GLENDON AVENUE · LOS ANGELES, CALIFORNIA 90024 · (213) 879-9700
CABLE: DAMEMOREO TWX: 910-342-7591

May 19, 1975

Western Oil and Gas Association
910 National Oil Building
6th and Grand Avenue
Los Angeles, California 90017

Attention: Mr. Harry Morrison

Gentlemen:

Under cover of this letter we are forwarding 125 copies of our Critique of the Bureau of Land Management's Draft Environmental Statement. Preparation of this document was carried out in accordance with our agreement dated March 20, 1975.

Prior to the final preparation of this analysis, rough drafts were submitted for review by the Western Oil and Gas Association staff. The pertinent comments and suggestions which were made have been incorporated into this final report.

Should you have any questions concerning this report, please do not hesitate to call on us.

Very truly yours,

DAMES & MOORE

G. Allan Smalley, Jr. By R. J. Hill

G. Allan Smalley, Jr.
Associate

Richard John Hill

Richard John Hill
Project Manager

GAS RJH rc

CRITIQUE

OF

BUREAU OF LAND MANAGEMENT

DRAFT ENVIRONMENTAL STATEMENT

FOR

LEASE SALE 35

BY

DAMES & MOORE

MAY 1975

LOS ANGELES, CALIFORNIA

DAMES & MOORE JOB NO. 2390-010-02

CONTENTS

		Page
LIST OF FIGURES AND TABLES		v-vi
SUMMARY		vii
	ROUTINE OPERATIONAL DISCHARGES	vii
	OTHER IMPACTS OF FACILITIES	ix
	ACCIDENTAL OIL DISCHARGES	x
	Spill Statistical Analysis	x
	Oil Spill Movement	xi
	Biological Impacts of Oil Spills	xiii
	HUMAN ENVIRONMENTAL CONSIDERATIONS	xiv
	Visual Aesthetics	xiv
	OCS Project and Coastal Zone Plan	xv
	Employment Summary	xv
GLOSSARY		xvii
1.0	INTRODUCTION	1
1.1	BACKGROUND	1
1.2	APPROACH	1
1.3	PERSPECTIVE	2
2.0	OPERATIONAL DISCHARGES TO THE OCEAN	4
2.1	GENERAL	4
2.2	DRILL CUTTINGS	5
2.2.1	Impact on Water Quality	5
2.2.2	Impact on Marine Biota	6
2.3	DRILLING MUD	8
2.3.1	Impact on Water Quality	8
2.3.2	Impact on Marine Biota	10
2.4	PRODUCED WATER	12
2.4.1	Impact on Water Quality and Marine Biota	15
2.5	SANITARY WASTES	21
3.0	OPERATIONAL DISCHARGES TO THE ATMOSPHERE	23
3.1	EMISSIONS	23
3.2	IMPACTS	24

CONTENTS

Page

4.0 OTHER IMPACTS OF FACILITIES CONSTRUCTION AND OPERATION 27

4.1 OFFSHORE PLATFORMS AND ASSOCIATED FACILITIES . 27

4.1.1 Impact on Navigation 28

4.1.2 Impact on Commercial Fishing 28

4.1.3 Impact on Sports Fishing 30

4.1.4 Other Impacts 31

4.2 PIPELINE EMPLACEMENT 31

4.2.1 Impact on Water Quality and Marine Biota . . . 32

4.3 LAND BASED FACILITIES 35

4.3.1 General Impact of Land Based Facilities 35

4.3.2 Impacts on Marine Mammals 36

5.0 OIL SPILL ANALYSIS 40

5.1 SPILL STATISTICAL ANALYSIS 40

5.1.1 Corrected BLM Data 40

5.1.2 Operating Improvements 47

5.1.3 Recurrence Intervals 50

5.2 OIL SPILL MOVEMENT 54

5.2.1 Proximity Evaluation 54

5.2.2 Spill Scenarios 59

5.2.3 Oil Spill Containment and Cleanup 64

5.3 BIOLOGICAL IMPACTS 66

5.3.1 Oil Spill Proximity Evaluation 67

5.3.2 General Effects of Hydrocarbons on Biota . . . 71

5.3.3 Effects on Specific Components of Marine Ecosystems 76

5.4 OTHER IMPACTS 81

6.0 HUMAN ENVIRONMENTAL CONSIDERATIONS 83

6.1 VISUAL AESTHETICS 83

6.1.1 Platform Vanishing Point (Horizon Line Effect). 87

6.1.2 Prominence 90

6.1.3 Atmospheric Effects 91

6.1.4 Summary 91

CONTENTS

Page

6.2 OCS PROJECT AND COASTAL ZONE PLAN 92
6.3 EMPLOYMENT AND INCOME 96
6.3.1 Employment 97
6.3.2 Income 101
7.0 "NO-PROJECT" ALTERNATIVES 103
7.1 ENERGY ALTERNATIVES TO THE PROPOSED OCS LEASING 103
7.1.1 Increased Importation of Foreign Oil 104
7.1.2 Coal Gasification and Oil Shale Development . . 106
7.1.3 Nuclear Energy 107
7.1.4 Geothermal Energy 108
7.1.5 Solar Energy 109
REFERENCES 110
APPENDIX

FIGURES

		Following Page
4.3.1	Petroleum Industry and Harbor Seals in Cook Inlet, Alaska	38
5.3.1	Outlying Occurrences and Limits of Districution of the Red Crab, Pleuroncodes planipes	78
6.1.1	Horizon Line Effect	85
6.1.2	Relative Platform Prominence	85
6.1.3	Proposed OCS Lease Boundaries Showing Maximum Area of Visibility (From Mainland)	86
6.1.4	Probable Platform Configuration	86
6.1.6	3 Miles From Platform	90
6.1.7	5 Miles From Platform	90
6.1.8	10 Miles From Platform	90
6.3.1	Preliminary Projection Direct & Secondary Employment OCS Project	98

TABLES

Page

2.4-I Characteristics of Untreated Produced Water From Huntington Beach Area, California 16

5.1-I Projected Average Oil Spillage During Peak Production Years 42

5.1-II Comparison of Historical Oil Spill Factors 43

5.1-III Oil Discharges From Human and Natural Sources 44

5.1-IV Estimated Average Oil Spillage During Peak Production Years Based on Advanced Technology 49

5.1-V Estimated Return Period for Major Oil Spills Based on Advanced Technology 51

6.1-I Subareas A-1 and A-2 88

6.1-II Subarea B-2 89

6.1-III Effects of Earth's Curvature 89

6.2-I Comparative Schedule WOGA - California Coastal Plan 94

6.3-1 Preliminary Projection Average Annual Direct and Secondary Employment 75-Year Period Proposed Southern California OCS Project 98

6.3-II Preliminary Projection Annual Salary Income Related to Direct and Secondary Employment 75-Year Period Proposed Southern California OCS Project 102

SUMMARY

In connection with the proposed Outer Continental Shelf (OCS) Lease Sale No. 35, Western Oil and Gas Association (WOGA) retained Dames & Moore to review and comment on the Draft Environmental Statement (DES) prepared for the proposed sale by the U.S. Department of the Interior (DOI), Bureau of Land Management (BLM). The review and critique summarized here has been submitted by WOGA to BLM in order to increase public understanding of the probable nature, extent, and significance of the various environmental impacts of OCS activities, and to offer constructive comments directed toward assisting BLM in preparation of the most factual and objective Final Environmental Statement.

In preparing this critique, Dames & Moore has addressed the principal environmental impact associated with the drilling and production operations, natural processes, and human actions that would follow the proposed lease sale.

ROUTINE OPERATIONAL DISCHARGES

Routine operational discharges to the ocean associated with offshore oil and gas drilling and production activities include drill cuttings, drilling mud, produced waters, and sanitary wastes. Operational discharges to the atmosphere consist primarily of engine exhausts and vapor releases, with occasional flaring of combustible gas.

In discussing the environmental impacts of operational discharges to the ocean, the BLM DES generally predicts significant adverse impacts on water quality and biota, but these predictions are almost entirely unsubstantiated by supporting quantitative data or relavent field observations.

Dames & Moore concludes, based on extensive examination of the technical literature and on the results of various recent studies, that discharge to the ocean of drill cuttings, nontoxic drilling mud, produced formation waters, and sanitary waste (in conformance with Federal regulations for OCS activities) result in environmental impacts that are ephemeral, highly localized, and of minor significance to the marine ecosystem.

Over an extended period, the Southern California OCS has received a large volume of natural oil seepage and oil-containing sewage discharge. In petroleum development, even if no recovery were planned, the projected amounts of spilled or discharged oil would be less than the present chronic seepage and discharge by an order of magnitude. Therefore, the impacts must be projected as negligible.

Recent studies of bays in the Gulf of Mexico with up to 25 years exposure reveal no effects on the biota from the presence of oil operations. Nonetheless, researchers are continuing to work to learn if dilute concentrations of oil might create subtle or hidden environmental problems. Even if these studies should eventually reveal some minor effects, small discharges related to petroleum production would be a far lesser contributor to the problem than the previously mentioned natural seepage and sewage discharge.

Regarding the impacts of operational discharges to the atmosphere, the BLM DES generally concludes that the adverse impact on air quality will be small. Dames & Moore concurs, but also concludes that using OCS gas in the Los Angeles Air Basin (as a substitute for less desirable fuels, such as 0.5 percent fuel oil) will have significant beneficial impact on air quality.

In discussing various possible impacts, the BLM DES omits comparison of the projected OCS operational discharges with the numerous large scale natural and man-made effluent discharges to the Southern California Bight, and man's emissions to the Los Angeles Air Basin. In such a comparison, it is apparent that the OCS operational discharges are miniscule in both size and effect.

OTHER IMPACTS OF FACILITIES

Construction and operation of drilling and production platforms and associated offshore facilities and pipelines as a result of the proposed OCS lease sale will have limited impact on navigation, commercial fishing, sport fishing, water quality, and marine biota.

Of the 159 Federal OCS accidents related to oil and gas operations recorded for a 17-year period through 1972, only 3 were ship collisions with offshore structures.

Overall adverse impact to commercial fisheries would be minimal. Structures would cause some interference with commercial fishing operations in the waters immediately adjacent to the platforms. Further, underwater structures would have significant beneficial impacts on sport fishing because such structures provide habitats for fish.

Although pipeline burial would cause localized temporary turbidity, the impact on water quality and marine biota would be several orders of magnitude less in duration and extent than equivalent natural turbidity associated with storm water runoff.

Construction and operation of land based facilities associated with OCS activities would have minor impacts because most activities will occur in areas already committed to maritime industrial work, such as shipyards and drydocks. If construction activities were to extend into new areas, the resulting temporary impact could be significant.

Although the BLM DES expresses concern about postulated adverse impacts of platforms and shore based facilities on important marine mammals such as sea lions, seals, and sea otters, recent data from various sources indicate that extensive oil-related developments in Cook Inlet, Alaska have not interferred with mammal populations there.

ACCIDENTAL OIL DISCHARGES

Spill Statistical Analysis

The BLM DES presents a detailed account of historical oil spill records and then makes an attempt to predict the number of impact-producing events (spills) and quantities involved which will result if this proposed lease sale is conducted. Using U.S. Geological Survey (USGS) data, the BLM analysis culminates in a summary table that indicates annual oil spillage in the range of 83,000 to 116,000 barrels for an annual production level of 360 million barrels per year.

Review and examination of the original USGS data indicates the BLM projection of annual spillage is high due to apparent computational errors, inconsistencies in applying the data, and unsubstantiated assumptions. Dames & Moore's analysis of the same USGS data base shows that the correct figure for estimated annual oil spillage for equivalent production volumes should be about 25,000 barrels, which is approximately 20 to 30 percent of the BLM estimates. These total annual spillage figures are not for a single event, but represent the sum of seven accident categories. Most of this spill volume can be effectively arrested by existing spill cleanup technology.

Oil Spill Movement

The BLM DES includes a section on proximity evaluation that purports to show the relative environmental risks posed by each tract. The concept of defining some quantifiable, relative measure of potential environmental impact for each tract is a good one. However, the methodology used by BLM has a sufficient number of serious deficiencies and questionable subjective criteria to render the final results of doubtful value.

In the BLM analysis, no attempt was made to determine actual direction of drift based on wind and current, even though such data are available. Spilled oil was assumed to drift continuously at constant speed directly toward the nearest resource for up to 60 hours. This is an unjustifiably conservative assumption that adversely biases the results. By using the more conventional assumption that oil drifts at a rate equal to the vectorial sum of the water current plus 3 percent of the wind speed, spill drift patterns markedly different than those used by BLM would be obtained.

The final result of the BLM proximity and risk analysis is that 80 percent of the lease tracts have relatively high potential for one or more of three categories of environmental impacts. This conclusion is of little value because it implies that development of most of the tracts may result in some type of environmental impact. The analysis does not permit a meaningful ranking of the tracts on a scale of potential relative impact--the stated objective of the BLM analysis.

BLM presents various oil spill scenarios to give an idea of the extent to which spilled oil might contaminate water and shoreline areas. Unfortunately, these scenarios present an incorrect and unrealistic picture because of improper application of theoretical models for predicting oil spill spread and drift. For example, BLM's projection of oil slick growth is inconsistent with standard and accepted methods for analyzing oil spill incidents, such as those developed by the U.S. Coast Guard (USCG).

Using the accepted USCG methods, the size of slick developed in a given time would be a fraction of the size postulated by BLM. This and similar procedural misapplications result in estimates of "beach length contaminated" which are totally unrealistic.

Less than two pages of the BLM DES is devoted to the current status of oil spill containment and cleanup technology, even though there is an extended presentation of a major oil spill incident that has a very low probability of occurring. This is an obvious imbalance between discussion of potential adverse impacts, and presentation of information relating to mitigating measures that would significantly reduce these impacts.

An average reader of the BLM DES, not informed on the current status of containment and cleanup technology, would more than likely assume that a major oil spill, say the size of the Santa Barbara blowout, would have the same adverse impact as the Santa Barbara incident. This would be a false assumption. Current oil spill cleanup technology will significantly reduce the amount of oil that will produce an adverse impact. This will be accomplished by containment of the oil at the spill source, barrier protection of significant resource areas, and removal of much of the oil from the ocean's surface. Furthermore, advances in technology by the time peak production is expected to occur will minimize even further the damage potential of a major oil spill.

Biological Impacts of Oil Spills

Considerable information already exists on biological impacts of accidental release of oil to the marine environment. This information was developed from a large number of recent basic research studies utilizing laboratory investigations and field observations during actual oil spill conditions. Unfortunately, the BLM report does not provide a concise overview or even an adequate review of these findings.

The major problem in the treatment of marine biology by BLM is that many suggestions of impacts are made without adequate qualifying statements. Because little attempt is made to quantify the implied effects on biota, the reader is required to address the magnitude of such effects without the benefit of knowing the likelihood of occurrence. In addition, statements are often made without citation of a literature source, so it is not always clear whether factual information or speculation is presented. In other cases, unsubstantiated speculation is obvious.

Even though all of the biological "significant resource factors" specified in the BLM DES were affected, for example, during the Santa Barbara spill, none sustained serious long term damage as documented by Straughan (1973).

The BLM DES refers repeatedly to the idea that petroleum hydrocarbons may be taken up by marine organisms at lower trophic levels and concentrated in fauna at higher trophic levels (food chain magnification). There currently exist no references in the literature that establish the validity of the food chain magnification hypothesis as it applies to petroleum hydrocarbons. All evidence suggests that organisms subjected to temporary exposure to petroleum pollution depurate (rid their tissues of hydrocarbons) rather than retain accumulated hydrocarbons, thus reducing the likelihood that food chain magnification would occur.

HUMAN ENVIRONMENTAL CONSIDERATIONS

Visual Aesthetics

Drilling and production platforms are considered to be the major source of visual impacts. The cumulative effects of the earth's curvature, relative platform prominence, and atmospheric phenomena on the visibility of a proposed offshore platform all act to diminish the possible visual impact of the structures. Of the estimated 60 to 62 platforms, only 18 (about 30 percent) would be visible from promontories and other elevated scenic viewpoints along the mainland shoreline.

For those platforms visible from shore it is judged that the visual impact will indeed be significant to some people, but this interruption of the existing seascape would not be critical to most people.

OCS Project and Coastal Zone Plan

The development of the proposed project in parallel with consideration of the proposed Coastal Plan legislation need not result in conflict between the Coastal Plan and OCS exploration and development.

The early stages of the OCS project will not involve activities requiring land use changes in the Coastal Zone. Planning, exploration, onshore platform prefabrication, and preliminary development drilling will require approximately 2 years. Only after this period of offshore work will activities reach a point where any significant amount of construction of pipelines and land based facilities will be required in areas that are under the jurisdiction of State and local public agencies.

The policies of the Preliminary Coastal Plan regarding petroleum development are all aimed toward meeting the balanced goal of utilizing the offshore oil resources while continuing to protect the coast's environmental resources. There is no policy in the plan that would bar the utilization of OCS oil. On the contrary, and importantly, the plan states (p 213): "It is very difficult to make the judgment that offshore oil drilling and production platforms are intrinsically at variance with the objectives of the Coastal act."

Employment Summary

The Los Angeles/Orange/Ventura Counties area has a large labor force (45 percent of California's total) with many highly skilled workers capable of being trained for a large proportion of the OCS jobs. At present, about 9 percent, or 371,000 workers, of this labor force is unemployed (State of California, 1975). In the first 5 years of the project, it is forecast that the annual direct and secondary employment will reach 10,600, 2.8 percent of the existing three-county unemployed workforce. It is not possible to predict exactly how project employment will affect unemployment in the region. However, it is safe to say that it will provide employment to some persons who would otherwise be unemployed. In addition, it will allow some workers an opportunity to advance into more skilled and highly paid jobs.

GLOSSARY

ASBS	Areas of special significance
bbl	Barrel (42 gallons)
biostimulatory	A substance that induces or affects biological functions
BLM	Bureau of Land Management
BOD	Biochemical Oxygen Demand
BPCTCA	Best practicable control technology currently available
CCZCC	California Coastal Zone Conservation Commission
COFRC	Chevron Oil Field Research Company
DES	Draft Environmental Statement
DOI	Department of the Interior
ecosystem	System that includes the organisms of a natural community with their environment
EIS	Environmental Impact Statement
GRT	Gross registered tonnage
GURC	Gulf Universities Research Consortium
littoral	On or near the shore
LNG	Liquefied natural gas
NEPA	National Environmental Policy Act
OCS	Outer Continental Shelf
pelagic birds	Sea birds that can range away from land
pinnipeds	Sea lions, seals
phytoplankton	Free floating and drifting plants of the sea
ppm	Parts per million
SSCWRP	Southern California Coastal Water Research Project
thermocline	The layer of seawater in which temperature change with depth is greater than in the water above or below
USCG	U.S. Coast Guard
USGS	U.S. Geological Survey
WOGA	Western Oil and Gas Association

1.0 INTRODUCTION

1.1 BACKGROUND

Following the 1973 nomination of areas of interest within the 12,000-square-mile area designated for Outer Continental Shelf (OCS) Lease Sale No. 35, Dames & Moore was retained by the Western Oil & Gas Association (WOGA) to undertake an independent assessment of (a) the probable drilling and production activities that might occur in this Federal offshore area, and (b) the resultant environmental effects of such developments. This assessment was completed and released to the general public in December 1974. The Federal Draft Environmental Statement (DES) for the proposed lease sale was released by the Bureau of Land Management (BLM) of the Department of the Interior (DOI) in February 1975. WOGA again retained Dames & Moore to review and comment on the DES pursuant to a public hearing on May 6, 7, and 8, 1975.

The following review and critique has been submitted by WOGA to BLM in order to increase public understanding of the substantive commitment of private companies to environmental protection and to offer constructive comment directed toward assisting BLM in preparation of the most factual and objective Final Environmental Statement (FES).

1.2 APPROACH

In preparing this review and critique, Dames & Moore has addressed the principal environmental impacts associated with the drilling and production activities that would follow the proposed lease sale. These include the impacts of (a) routine operational discharges to the ocean and to the atmosphere, (b) other types of facilities construction and operation, and (c) oil discharges from spills and other sources. The impact of these OCS activities on Costal Zone planning and management are also considered. The critique is concluded by a discussion of energy alternatives should there be no lease sale. It is important to recognize that comparative analyses presented in this critique are based on the recovery of 14 billion barrels of oil from the Southern California OCS area. This value was derived from an estimate of the total OCS reserve as presented in the WOGA Environmental Assessment Study (WOGA, 1974). BLM in their DES used a recoverable resources figure of 14 billion barrels for purposes of impact analyses, rather than the 1.6 to 2.7 billion barrels estimated by USGS. Use of this high value is considered the conservative approach in the following comparative analysis of impacts.

For convenienience of the reader, this review generally presents first a brief description of the nature and magnitude of a particular activity (for example, the discharge of drill cuttings as a well is drilled), followed by a description of the nature, extent, and probable significance of the environmental impact of this activity. If there is disagreement between the BLM DES and the Dames & Moore WOGA assessment, then this disagreement is pointed out and, wherever possible, additional pertinent information is presented to document Dames & Moore's professional judgment regarding the point in question.

1.3 PERSPECTIVE

According to the National Environmental Policy Act (NEPA), one of the key purposes of an environmental impact statement is to describe, in as specific terms as possible, what will occur or what will not occur as a result of a particular action or set of actions. This description obviously requires making judgments based on reliable data. The BLM DES, however, appears not to treat some highly speculative unknown elements realistically and/or judiciously. This has seriously weakened the objectivity of the DES.

In a number of cases, BLM expresses speculative concerns regarding the possible impacts of OCS actions. By contrast, the nature, magnitude, and effect of natural processes and human actions more significant than OCS impacts are seldom discussed.

Examples of some natural processes and human actions with which comparisons should be made are:

- With reference to changes in salinity caused by discharge of formation waters produced with the oil, it would be enlightening to compare the relative effect of solar evaporation, rainfall, or terrestrial runoff during storms.
- Similarly, the decrease in photosynthesis as the result of temporary and localized man-made turbidity should be compared to similar effects caused by cloud cover, storm runoff, or other climatic variables.
- The impact of potential oil spills should be compared to the effects of long term natural oil seepage and the significant volume of oil contained in the array of municipal sewage discharges along the Southern California Bight.

Many other examples could be cited. The point is that without comparison to other processes and activities and the impacts they produce, the true significance of the OCS activities and impacts cannot be realistically assessed.

2.0 OPERATIONAL DISCHARGES TO THE OCEAN

2.1 GENERAL

Discussions of possible impacts on water quality and marine biota resulting from operational discharges to the ocean--such as deposition of drill cuttings and drilling mud, and release of produced water and sanitary wastes--appear repeatedly in the BLM DES. These discussions generally predict significant adverse impacts on water quality and biota, but the predictions are almost entirely unsubstantiated by supporting quantitative data or reference to relevant field observations. In addition, there are several cases where the BLM DES ignores recent studies that negate these adverse predictions. Further, the BLM DES omits the logical and very important comparison of the projected OCS operational discharges with the numerous large scale natural and man-made effluent discharges to the Southern California Bight. In such a comparison, it is apparent that the OCS operational discharges are miniscule in both size and effect.

In short, the BLM DES's major overstatement of adverse impact from operational discharges requires clarification.

The following sections summarize Dames & Moore's careful evaluation of the probable impacts of these operational discharges based on:

(a) A comprehensive environmental assessment of the proposed OCS lease sale (Dames & Moore, 1974), and

(b) Development and review of additional data sources.

2.2 DRILL CUTTINGS

As summarized in the Dames & Moore Environmental Assessment (1974, pp 2-21 and 5-33), a typical well would produce about 450 to 500 cubic yards of cuttings. For the maximum number of wells (about 65) for a single platform, the maximum volume of cuttings at 1 platform site would be about 32,500 cubic yards. More typically (Dames & Moore, 1974, p 2-21),

> ...For an average platform of 30 wells, around 15,000 cubic yards would be involved. Depending on the angle of repose, the bottom radius covered by the mound of cuttings would be just over 100 feet. The cuttings might spread over a wider area of the bottom, but this can be minimized by discharging them below the thermocline.

In conformance with OCS Order No. 7 (U.S. Department of Interior, 1971), the cuttings are required to be washed and to be oil-free if they are to be dumped into the ocean. Further, monitoring for toxic materials must be conducted.

OCS drill cuttings (and waste drilling mud) will probably be discharged through a tail pipe that extends below the thermocline.

2.2.1 Impact on Water Quality

With respect to impact of drill cuttings on water quality, Dames & Moore (1974, p 5-28) concludes:

> ...Discharge of the cuttings into the water would produce temporary turbidity effects, reducing the amount of underwater illumination in the vicinity of the drilling platforms. The effects would be ephemeral and highly localized...

2.2.2 Impact on Marine Biota

Deposition of 450 to 500 cubic yards of cuttings during the drilling of each exploratory well would not be likely to produce more than a temporary perturbation to local benthic communities, and this would probably have no detectable consequence (Dames & Moore, 1974, p 5-29).

In development drilling, with up to 65 wells drilled from a single platform, the maximum volume of cuttings per platform would be about 32,500 cubic yards, which could generate a mound on the order of 200 to 300 feet in diameter. For such deposits of drill cuttings, Dames & Moore (1974, pp 5-33 and 5-34) concludes:

> ...Due to occlusion of feeding mechanisms of filter and suspension feeders, benthic epifauna and infauna organisms populating the sea floor directly below the platform would suffer adversities where cuttings would be deposited. The deposition rates--10 to 15 yards per day--are low. But the animals whose resurfacing capabilities might be exceeded would be asphysxiated. In addition, portions of the encrusting epifauna community associated with the lower reaches of casings, platform substructure, and pipelines might be subject to burial.
>
> The size and extent of the mound forming under each platform would depend on such factors as: particle size of cuttings, which affects settling rate; currents; and water depth. Coarser materials would be likely to comprise the bulk of the mound; finer components would be expected to be distributed in response to prevailing currents and would grade into natural sediments of the immediate area. Sediment reworking by benthic organisms and natural erosional-depositonal forces eventually would be expected to render much of the downstream cuttings deposition indistinguishable from surrounding sediments. Unless a veneer

> of sediments typical of the area became a permanent part of the mound, recolonization of the cuttings mound by local forms might be prevented because of contrasting sediment texture. A study by Turner et al., (1971) on platforms in the Santa Barbara Channel concluded that a mound of washed drill cuttings below a drilling platform produced effects that were generally neither deleterious nor beneficial to flora and fauna; the mound did not attract fish nor did it offer a suitable substrate for the attachment of plants and animals. The question of whether typical cuttings mounds may be substantially recolonized over a long period of time awaits further study.
>
> Discharge of cuttings would result in temporary local increases in water turbidity that would have the effect of reducing the amount of light available for plant (mainly phytoplankton) photosynthesis. The portion of local populations of phytoplankton involved would be very small, especially if the cuttings were released through an outfall pipe that opens below the thermocline.

Thus, temporary turbidity resulting from cuttings discharge

> ...would not be expected to result in any measurable interference with the general level of primary production (photosynthesis by phytoplankton) for the local areas as a whole. (Dames & Moore, 1974, p 5-28).

In support of the above conclusions, the BLM DES (Vol 2, p 99) concludes:

> ...when considered separately from drilling muds, regular discharge of drill cuttings will not result in a reduction of the benthic communities of the continental shelf.

2.3 DRILLING MUD

The typical chemical composition of two principal types of drilling mud and the types and functions of mud additives are presented in Tables 3 and 2, respectively, in the BLM DES (Vol 3, pp 120-123) along with a brief discussion (pp 119-124) of the amount, and reason for the mud use. This section concludes with the statement (p 122):

> ...After the final well is drilled, all mud is generally barged ashore for recovery of chemical components or storage. Occasionally, when transportation to shore storage facilities is not feasible, the unweighted components (whole mud-less barite) are discharged overboard. The high cost of barite and other chemical additives makes their recovery economically desirable, however, and tends to keep overboard disposal at a minimum.

2.3.1 Impact on Water Quality

Discharge of mud from a platform can produce a localized turbidity plume that would extend some distance down current from the platform. In this connection, data from a field study (Zingula, 1975) of a turbidity plume from a drilling well on Exxon's South Timbalier Block 54-E platform off the Louisiana coast is instructive. Quantities given in the following table indicate turbidity levels expressed as suspended solids.

Sample Location	Suspended Solids mg/l (ppm)
Drilling mud from shaker	350,000.0
Mud at downpipe at water surface	278.0
Water at surface, center of plume, 100 yards downstream	40.7
Water at 30 feet, center of plume, 100 yards downstream	1.5
Water at surface, center of plume, 1/8 mile downstream	5.5
Water at 30 feet, center of plume, 1/8 mile downstream	1.1
"Clean" sea water at surface, 100 yards upstream	5.2

As evident from the data, 100 yards downstream the suspended solids value in the plume was 40.7 milligrams per liter. At one-eighth mile downstream, the value in the plume was virtually identical to normal "clean" surface water. This gives an indication of the rapid dispersion throughout the water column. In short, the turbidity caused by drilling mud discharge is localized and does not appear to be a major factor in reduction of water quality.

In support of this conclusion regarding the effects of turbidity from discharge of drilling muds and cuttings, the BLM DES (Vol 2, pp 75-76) states that these sources would cause:

> ...local effects of low severity that would be concentrated around pipeline corridors and platforms. These effects would be immeasurably small at more than a few feet from the point of discharge.

As to the effect of drilling mud additives, the BLM DES (Vol 2, pp 98-99) states that the presence of barium compounds in drilling mud represents "a serious, but as yet undetermined, threat to aquatic life..." and states or implies (Vol 2, pp 63, 87, 89) that chromium compounds in drilling mud also represent a potential threat to marine life.

According to Ellis (1975), the soluble barium in drilling mud is present in approximately the same concentration as found in sea water--0.05 parts per million (ppm). In addition Zingula (1975) reports that soluble barium in chrome lignosulfonate muds were below detection levels (0.5 ppm) at a drilling platform off the Louisiana coast.

With regard to chromium, which is present in drilling mud as the organic complex ferrochrome lignosulfonate, the BLM DES (Vol 2, p 63) states that

> ...Recent [but uncited] work suggests that chrome lignosulfonate, in moderate to strong dilution, is relatively harmless. While readily soluble in sea water, the compound apparently dissociates very little.

Further, according to Haseltine (1975), the chrome is so tightly bonded in this organic complex that it is difficult to detect the presence of the chrome using conventional laboratory analytical techniques.

According to Zingula (1975), analyses of chrome lignosulfonate drilling mud from a drilling platform off the Louisiana coast show soluble chromium levels of less than 0.2 ppm, which was the minimum level of detection of the atomic absorption instrument used in the analyses.

Finally, the input of chromium to the marine environment from OCS activities (drilling muds) is probably miniscule relative to amounts entering the ocean waters off Southern California in undiluted municipal waste water discharges, which average about 0.5 ppm (Southern California Coastal Water Research Project, 1974).

2.3.2 Impact on Marine Biota

Regarding potential impact on marine biota, the Dames & Moore report (1974, Vol 3, pp 5-29 and 5-30) states:

Possible adverse effects to biota might result from loss of toxic drilling muds due to accidents while drilling, or to overboard spillage from the platform. In either event, the benthic community in the immediate vicinity of the spillage would be impacted more and incur greater damage than other segments of the ecosystem, owing primarily to the high density of these muds that would cause them to settle directly to the bottom.

Daugherty (1951) tested effects of various compounds used in drilling fluids on a variety of marine organisms and assigned the muds the following classifications:

Nontoxic:	Baroco drilling clay Aquagel Baroid drilling mud Carbonox Jelfake Fibertex Mica Oilfos
Low toxicity:	Sodium acid pyrophosphate Quadrafox Impermex Sodium polyphosphate Stabilite No. 9
Toxic:	Caustic soda Oil well cement Tannex White lime

The latter two categories produced mortalities in concentrations of 500 to 7,500 and 70 to 450 parts per million, respectively.

The materials in the toxic category--particularly tannic acid and soda--tend to neutralize each other so that the resultant toxicity is much lower than the absolute toxicity. The inert materials include insoluble barium (as barite), and chemically complexed chrome (as ferrochrome ligonsulfonate). Their presence has brought concern from environmentalists about heavy metal contamination. But at present, there is no reason to consider them anything but inert.

> In routine operations, spillage of drilling muds would be very limited and would not be considered to have a major impact potential.

No signs of toxicity to fish were observed when barium sulfate, up to 7,500 ppm, was stirred into fresh water containing them (Logan, 1973). In addition, Standard Oil Company of California has run 96-hour LD_{50} bioassays using a fish, the stickleback; these showed that drilling mud containing chrome lignosulfonate had very low toxicity values. Specifically, the TL_{50} -96 values were greater than 1,000 milligrams per liter (same as ppm) for XP-20 chrome lignite and for VC-10 lignosulfonate (Haseltine, 1975).

2.4 PRODUCED WATER

As summarized in Dames & Moore (1974, Vol 3, p 2-18), the produced water volume in petroleum extraction typically varies from 20 to 150 percent of the oil produced. Salinity of the produced water can vary from 1,000 to 250,000 ppm (McKee, 1956). For the Southern California OCS area, during most of the useful life of the field, the projected volume of produced water would range from about one-half barrel to a maximum of one barrel per barrel of oil produced (Taylor, 1975).

A survey was performed on 130 oil fields in Southern California (Bertness, 1975) that showed salt content of such waters ranges from 24 percent to 115 percent of the normal ocean salinity. Over 94 percent of these produced waters were less salty than seawater. Therefore, anticipated salinities typically would be 8,000 to 10,000 ppm but in some cases might slightly exceed the ambient salinity of seawater (35,000 ppm).

This is far more realistic than the description of oil field brines presented as follows in BLM DES (Vol 2, p 3):

> ...Some fields in Texas produce almost pure water, whereas a Michigan field produced brines containing 624,798 ppm mineral salts. At this time no valid information exists for mineral salt concentrations from oil field brines in the Pacific OCS waters. The average total dissolved solids of 76 samples from southern Louisiana and the Outer Continental Shelf was found to be 112,513 milligrams per liter (mg/l) with a high of 270,400 mg/l and low of 61,552 mg/l.

The temperature of the produced water discharged generally would be in the neighborhood of 130°F.

In any case, the ocean can readily dilute and diffuse produced water discharges. Regulations stipulate that more than 50 parts per million oil content may exist in this produced water, although present California Federal OCS operations indicate less than this level is currently being discharged. Test information and ocean diffusion rates are such that, at best, this oil discharge is a local effect and quickly dilutes to a background value common to ocean waters around the world. Based on considerable study of Gulf of Mexico platforms, no apparent adverse effects result to the fairly high density of marine life just below the platform near the produced water discharges.

Generally speaking, the produced water content of a well increases as the reservoir is depleted. Whereas the initial water content may be low, near the end of the economic life of the well water may constitute the bulk of the fluid withdrawn. For the Southern California OCS area, it is probable that the volume of produced water to be discharged would be roughly equivalent to the volume of crude oil produced over the period 1975 to 2010 (see Table 2.2.2-1, Dames & Moore, 1974, Vol 3). For each platform, an average value of produced water might be 50,000 barrels per day, with a maximum value of 100,000 barrels per day.

Department of the Interior treatment requirements limit the concentration of oil remaining in discharged produced water to 50 ppm (OCS Order No. 7).

It should be noted that with one exception, the various discussions of the probable impacts of produced waters presented in the BLM DES (Vol 2, pp 3, 5, 72, 75, 85, 86, 89, 193, and others) deal with examples foreign to Southern California. BLM states (Vol 3, p 125) that:

> Most formation waters produced in the Gulf of Mexico...have concentrations of dissolved solids several times greater than seawater.

The emphasis the BLM DES places on Gulf Coast data and the virtual complete omission of at least a summary of the voluminous data available on the composition of brines produced from onshore or tidelands oil fields in Southern California seriously misrepresents the severity of potential impacts of the California OCS produced waters.

According to Ellis (1975), commenting on the BLM DES:

> ...none of these [Southern California] brines approach the concentrations quoted and, in fact, the vast majority of oilfield brines produced in Southern California are less concentrated than sea water. It is far more likely that the produced brines from the Southern California OCS will resemble onshore production from the same general geologic formations than from different geologic formations half a continent away.

Further, the one California example cited by BLM [(Vol 2, p 7) the Phillips Petroleum Company OCS P-0166 Lease, La Conchita Plant] had a total dissolved solids value of 44,400 milligrams per liter, which is less than 20 percent higher than seawater. As pointed out in Dames & Moore (1974, Vol 3, p 5-36), the Phillips La Conchita value is higher than the values anticipated as typical for the OCS produced waters.

In support of Ellis' judgment regarding Southern California brine concentrations being generally lower than seawater, produced waters from Miocene reservoirs in offshore fields in the Huntington Beach area have total dissolved solids values on the order of 26,000 to 28,000 ppm (see Table 2.4-I).

With respect to the following discussion of possible water quality and marine biological impacts from produced waters discharged from platforms, it should be noted that under existing water quality regulations, it is probable that most water will be reinjected into the producing formation (Taylor, 1975).

2.4.1 Impact on Water Quality and Marine Biota

The nature and degree of probable impact on water quality resulting from discharge of produced waters was discussed in detail by Dames & Moore (1974, Vol 3, pp 5-35 and 5-36). Summary excerpts from that discussion follow:

> Assuming that the produced water would be discharged from the platforms into the ocean, the thermal and chemical properties of the water would be expected to have some [water quality and] biological impacts in the vicinity. ...These properties would impart positive buoyancy to the

TABLE 2.4-I

CHARACTERISTICS OF UNTREATED PRODUCED WATERS FROM HUNTINGTON BEACH AREA, CALIFORNIA

PARAMETER	UNIT	11-27-72	11-30-72	12-05-72	12-07-72
FLOW	mgd	10.1	10.2	10.8	11.2
BACTERIOLOGICAL	MPN/100 ml or numbers/100 ml	N/A	N/A	N/A	N/A
GREASE & OIL	mg/l	125	68	89	100
SUSPENDED SOLIDS	mg/l	51	34	33	108
pH	pH Units	7.2	7.2	7.2	7.2
ARSENIC	mg/l	0.01	< 0.01	< 0.01	< 0.01
CADMIUM	mg/l	0.10	0.7	< 0.05	< 0.05
TOTAL CHROMIUM	mg/l	0.05	< 0.01	< 0.01	0.12
COPPER	mg/l	0.1	< 0.01	0.06	< 0.01
LEAD	mg/l	0.3	0.01	< 0.02	< 0.02
MERCURY	mg/l	< 0.001	0.002	< 0.001	< 0.001
NICKEL	mg/l	0.5	0.80	< 0.05	< 0.05
SILVER	mg/l	< 0.01	< 0.01	< 0.02	< 0.02
ZINC	mg/l	0.4	0.20	0.08	0.11
CYANIDE	mg/l	< 0.001	< 0.001	--	--
PHENOLIC COMPOUNDS	mg/l	1.0	1.6	--	--
TOTAL IDENTIFIABLE CHLORINATED HYDROCARBONS	mg/l	< 0.01	< 0.01	--	--
TOXICITY	Toxicity Units	N/A	N/A	N/A	N/A
RADIOACTIVITY	µCi/ml	N/A	N/A	N/A	N/A
BIOCHEMICAL OXYGEN DEMAND	mg/l	--	124.0	70.0	64.0
TOTAL PHOSPHATE	mg/l	--	5.3	6.6	6.0
TOTAL NITROGEN	mg/l	95.2	85.1	83.5	92.4

		6-18-71	8-7-71	1-30-73	9-12-74
Total Dissolved Solids (by evaporation)	mg/l	27,116	28,640	27,470	26,270

Source: From data available from the Regional Water Quality Control Board, Santa Ana Region.

> effluent, causing it to spread away from the point of discharge as a thin surface layer, except under conditions of turbulent mixing in heavy sea states. ...[Thus] ...the discharge would directly affect only surface... [waters]...in the vicinity of each platform. Over a relatively short distance from the point of discharge, mixing processes would be expected to disperse...and modify thermal and saline properties of the effluents to levels indistinguishable from those characteristic of ambient sea water. Oxygenation of these waters to supersaturated levels would proceed rapidly.

There are a number of statements in the BLM DES regarding probable impacts of produced waters that require correction. These include the following:

According to BLM DES (Vol 2, pp 195-196 and 417-418), toxicity of produced waters will increase with age. Specifically:

> Formation water extracted during the initial stages of oil production may be considered non-pollutant while those waters extracted and discharged in later stages of oil production may contain high concentrations of toxic materials, i.e., phenols, cadmium, chromium, lead, and mercury.

There simply is no evidence or logic to support this statement. To the contrary, based on Gulf Coast experience, the chemical composition of formation water would not be expected to change with field age (Taylor, 1975). Further, the toxic materials noted in the quotation would not be expected to be present in significant concentrations in the produced water. This is borne out in analytical results for the previously cited Phillips Petroleum La Conchita effluent and for the Huntington Beach effluent presented in Table 2.4-I.

In the BLM DES (Vol 2, p 194) the statement is made:

> For example, an oil field in an area of a mercury-rich formation may have a high mercury content in the formation water.

The same statement could be made of any other element in the periodic table. There is no statement to indicate the probability of toxic element formation waters being present in the OCS area. Should toxic elements be found in formation waters during periodic testing required by OCS regulations, the waters would not be discharged to the ocean.

The extremely limited dimensions of the effluent plume formed by discharged formation waters are acknowledged in one section of the BLM DES (Vol 2, p 72), which states:

> ...It could be anticipated that the release of this water would result in a plume trailing away from the point of discharge in the direction of the current, with a core [of the plume] perhaps a few feet in diameter and tens of feet in length... .

It should be noted that a plume this small would be almost impossible to detect with conventional oceanographic measurement techniques. It seems apparent that this small plume will have no significant effect on water quality in the ocean.

With reference to the oil content of produced water, the BLM DES (Vol 2, p 6) states:

> ...a very small amount of oil is entrained in formation waters which are discharged into the sea. OCS operating orders require that the

> average oil content at the point of discharge must not average more than 50 ppm. EPA is presently developing effluent limitations for discharges from production platforms which will be based on technological feasibility. OCS operations will be subject to these limitations.

The BLM DES (Vol 2, p 6) continues:

> The MIT Offshore Oil Task Group (MIT, 1973) has estimated that biologically, this low concentration, persistent source could be the most significant of all minor discharges, for this oil could contain a high percentage of water soluble aromatics. They note, however, that there appears to be no data on the fractional compositions of the oil remaining in the water after treatment in the oil/water separators. This separation process is ineffective against that portion of the oil which is dissolved into the water.

However, the MIT Summary report (MIT, 1973, pp 76-77) goes on to state that:

> ...Even if all the oil were soluble aromatics, toxic effects would be limited to the most sensitive phytoplankton and this effect would be localized in a very small portion of the [Georges] Bank. ...In short, it is difficult to envision the impact of the oil/water separator discharge being noticeable at the population level. This is consistent with Gulf experience in which the area under the platforms supports high population densities.

See further discussion in the MIT report (MIT, 1973, Vol 2, p 268) that concludes:

> The continuous discharge problem [from oil in produced water] does not appear to be a serious threat.

This conclusion is supported by the results of the Gulf Universities Research Consortium (GURC) Offshore Ecology Investigation (GURC, 1974, p 24):

> ...Primary Productivity data at both the Platform and Control sites obtained remarkably similar results.

The BLM DES (Vol 2, pp 194-195) speculates at some length regarding the various possible volumes of oil that might be discharged along with produced waters from the OCS lease area, and apparently settles on a range of 92 to 6,000 gallons of oil daily, provided that all discharges meet the OCS Order No. 8 limit of 50 ppm. However, the report acknowledges (p 195) that:

> Formation waters from OCS platforms in the Santa Barbara Channel have an effluent with oil concentrations of 1 to 33 ppm with an average concentration of 10 ppm.

By way of comparison, it should be noted that the Dames & Moore (1974, Vol 3, p 2-19) study concluded:

> ...The maximum discharge for OCS operations would be 56 barrels [2,352 gallons] per day. ...to put this in perspective, the natural hydrocarbon seepage over the area and the neighboring Santa Barbara basin has been estimated at 100 to 400 barrels per day. ... Oil discharged to the ocean in wastewater outfalls exceeds 1,300 barrels per day...

Further, a major study (Brown & Root, 1974) of Gulf Coast production platforms to determine the Best Practicable Control Technology Currently Available (BPCTCA) to remove oil from produced water concluded (p 4):

> ...the recommended effluent limitations for oil and grease in produced brine commensurate with BPCTCA are a long term average of 44 ppm with a daily maximum of 100 ppm.

2.5 SANITARY WASTES

As presented in Dames & Moore (1974, Vol 3, p 2-18), sanitary wastes are projected at 100 gallons per day per person, with a maximum of 500 barrels per day at any offshore location. Department of the Interior OCS Order No. 8 requires that treated sewage effluent contain no more than 50 ppm biochemical oxygen demand (BOD), no more than 150 ppm suspended solids, and have a minimum chloride residual of 1.0 mg/liter (ppm) after a minimum retention time of 15 minutes. Under these requirements, the turbidity and BOD impact of the sanitary wastes on water quality and marine biology will be negigible.

The BLM DES (Vol 2, p 190) concurs with this judgment but then contradicts its initial statement by stating (p 417):

> Treated sewage may have a significant effect on the water quality in the immediate area of sewage discharge...[by]...exerting a slight increase in the oxygen demand, nutrients, residual chlorine and turbidity.

Use of the word "significant" in the quoted statement is judged to be incorrect because a 500 barrel per day maximum discharge would have no detectable effect on the marine ecosystem (Dames & Moore, 1974, Vol 3, p 5-38). This conclusion is supported by the BLM DES (Vol 2, p 72) that states the plume from the produced water discharge, that

Dames & Moore (1974, Vol 3, p 2-18) has estimated to average 50,000 barrels per day (that is, 100 times larger than the treated sewage discharge), will have core dimensions measured only in tens of feet.

3.0 OPERATIONAL DISCHARGES TO THE ATMOSPHERE

3.1 EMISSIONS

The BLM DES addresses the subject of operational emissions to the atmosphere in a very qualitative manner. For example, (Vol 2, p 183):

> ...several types of sources including exhaust emissions from stationary power units, source vehicles, and by accidental release and combustion of oil and gas.

The DES also states (Vol 2, p 415):

> In the process of recovery and transporting resources from the offshore, various types of air emissions will occur.
>
> Slight additions to the onshore air pollution will result from normal operating procedures of storage, treatment, terminal facilities, and any new refineries that will be built.

Information of a more detailed and specific nature is provided in the Dames & Moore assessment (1974, pp 2-22 to 2-42). This information is summarized here to give the reader a better perspective on the type, source, and quantity of emissions likely to occur.

The sources of air emissions from regular OCS operations would be the exhausts from power and energy usage, such as heaters and motor/generators, and the small vapor releases that occur in handling volatile materials.

Positive vapor control is projected for all storage tanks and filling operations, and direct emissions of hydrocarbons to the atmosphere are not expected under normal operating conditions.

Gas burners will be used in process equipment to remove gas and formation water from the produced crude oil. Gas turbines will be used for pumps and vapor compressors, and for the production of liquefied natural gas. Diesel engine/generators will be used to power the drill rigs. The total emissions from these units are estimated to be 18 to 32 tons per day, depending on what development plan is ultimately used. By way of comparison, the BLM DES (Vol 1, p 690) indicates that total air pollutant emissions from the San Diego, south coast, and south-central coast air basins during 1972 were 19,506 tons per day.

3.2 IMPACTS

The BLM DES (Vol 2, p 415), although lacking any detailed analysis, concludes that:

> ...the air around specific offshore locations will be impacted by a minor amount and for a slight duration of time. The onshore air spaces will not be impacted by normal offshore activities.

With regard to pollution from onshore activities, the report states:

> ...The added increase, according to the Air Pollution Control Districts, will add far less than one per cent to the existing air quality and will be within the allowable standards.

The conclusion offered by BLM that impact on air quality will be minimal and insignificant is supported by a thorough and detailed atmospheric dispersion analysis summarized in Dames & Moore (1974, pp 5-22 to 5-25) and presented in detail in WOGA (1974, Appendix 2). This analysis focused principally on oxides of nitrogen since this pollutant accounts for upward of 90 percent of the total emissions expected. Using absolute "worst case" meteorological conditions, it was calculated that the highest nitrogen oxide concentration that might occur was less than 2 percent of the Los Angeles County APCD first-stage alert level. The impact to be expected from other pollutants is even less significant.

Although the BLM DES and the WOGA (1974) environmental assessment study are in general agreement with regard to potential impact on air quality, strenuous objection must be taken toward BLM's viewpoint on consumer usage of natural gas that would be produced from OCS operations. According to BLM (Vol 2, p 188):

> Low level pollution may result from consumer usage of natural gas, if residual sulfur was present. The burning would add to the SO_2 level of the air... .

This statement completely ignores the fact that, if this gas were not made available to the consumer, the alternative may be to burn fuel oil that would produce substantially greater emissions of SO_2. To illustrate, natural gas typically contains about two grains of sulfur per thousand cubic feet of gas, and generates about four grains of SO_2 upon combustion. In order to generate the same amount of heat, approximately 55 to 60 pounds of fuel oil would have to be burned. If this oil contained 0.5 percent sulfur, it would release about 4,000 grains of SO_2 upon combustion. In other words, emissions of SO_2 would be 1,000 times greater. Estimated total emission reduction, if an average daily OCS gas production of 1.2 billion cubic feet replaces 0.5 percent sulfur content fuel, would be 546 tons per day.

Thus, in identifying the consumer usage of natural gas that would be produced from OCS development, BLM should emphasize the benefits to be derived and not the miniscule amount of air pollution that would result.

4.0 OTHER IMPACTS OF FACILITIES CONSTRUCTION AND OPERATION

4.1 OFFSHORE PLATFORMS AND ASSOCIATED FACILITIES

As presented in the WOGA 1974 study (Executive Summary, p 19), a series of platforms and related facilities are projected for the OCS coastal shelf and borderland areas. These facilities (listed below) might impact other operations in the OCS area or present visual impacts (only coastal shelf facilities) to the public along the coastline.

COASTAL SHELF

18 production and treatment platforms (including support of subsea wells)

BORDERLANDS

10 production and treatment platforms in support of subsea wells

34 production platforms

6 production and treatment vessels in support of deep water subsea wells

This projection of facilities assumes 14 billion barrels ultimate recovery from the tracts proposed for lease consideration and borderland tracts adjacent to them. If recovery should turn out significantly less, it is probable that most of the reduction in facility installation would affect the borderlands area. Gas liquefaction modules, if used, would be located at treatment points in the deeper water sections of the borderlands.

4.1.1 Impact on Navigation

The presence of drilling and production platforms in the OCS area will serve as a moderate constraint to navigation in areas where such constraints were not previously present. It should be noted that designated shipping lanes currently extend from Point Conception to Point Fermin and from Los Angeles Harbor south for 18 nautical miles (USCG, 1974). As required by present regulations, no platform would be constructed within one-half mile of any shipping lane (BLM, Vol 2, p 202).

Further, the BLM DES concludes:

> An analysis of the 159 Federal OCS accidents related to oil and gas operations from 1956 to 1973 indicates a minimal impact on shipping and navigation. During that period, three accidents were recorded of ships colliding with an offshore structure.

4.1.2 Impact on Commercial Fishing

The platforms (and subsea completions) would prevent or limit some fishing activities in areas immediately adjacent to structures. As presented above, however, a total of 68 or less structures (18 for the coastal shelf and about 50 for the borderlands) are projected for the 12,100 square mile OCS lease area. Because of the tendency of most oil producing reservoirs to occur in linear trends, the platforms typically would be clustered in relatively limited portions of the lease area rather than distributed uniformly. This would substantially increase the percentage of lease area free of any hindrance to commercial fishing.

In this regard, Dames & Moore (1974, p 5-32) concludes:

> Stable platforms and floating platforms and their bottom completions would constitute an obstacle both to commercial trawlers and purse-seiners; however, the areas affected would be small for each platform. As currently envisioned, the number and locations of platforms suggest that the overall adverse impact to commercial fisheries would be minimal.

By contrast, the proximity evaluation in BLM's DES (Vol 2, pp 328-344) considers that structures may have a relatively high disruptive potential upon commercial fishing. The assumption made in the BLM evaluation is that if a structure were placed within a tract encompassed by a California Department of Fish and Game fish block with a yearly commercial catch of greater than 10 million pounds, then the structure would be disruptive to commercial fisheries. To be sure, the presence of a platform in a high-catch block may result in some interference with fishing activities in the immediate vicinity of the platform but the BLM evaluation judges that there would be interference with the entire 8 by 10 nautical mile block. Clearly, the BLM evaluation significantly overstates the impact of the structures.

With regard to purse-seine fishing boats drifting into structures while the seine is deployed, the BLM DES (Vol 2, p 174) states:

> Purse-seining is the largest commercial fishery in the lease area. Purse-seine fishermen are at drift and almost completely at the mercy of winds and currents while the net is in the water, a period of 2 to 4 hours. Winds of 10 to 15 knots are common and the fishing boats can drift up to 15 miles... .

The purse-seiners that operate in the OCS area are much smaller than high-seas tuna purse-seiners, and generally require less than 1 hour to complete a set (Gainsly, 1975). Because a deployed purse-seine constitutes a very effective sea anchor, it is very unlikely that 10 to 15 knot winds could cause boats to drift up to 15 miles during the period the seine is set. Further, because of the sea anchor effect, currents would have more effect on drift than would winds. In this regard, the average speed of the California Current is 0.25 to 0.5 knot, although speeds up to 1 knot can develop for short periods of time (Schwartlose and Reid, 1972). Tidal currents rarely exceed 20 centimeters per second (Emery, 1960), which is 0.4 knot. Although winds can drive surface waters at somewhat higher speeds, a deployed purse-seine would tend to move with current speeds of the water column.

4.1.3 Impact on Sports Fishing

As to the effect of platforms on sports fishing, Dames & Moore (1974, p 5-32) states:

> A beneficial impact would result from attractions of the underwater structures for fishes. At offshore platforms, populations of fishes have been observed to grow from a few scattered individuals to several thousand semiresidents (Turner et al., 1971). Possible reasons for this attraction are habitat properties of shelter and the abundance of food organisms represented by the encrusting community. For years, artificial habitats have been constructed and studied by the California Department of Fish and Game (Carlisle et al., 1964; Turner et al., 1969). All habitat materials, which range from various kinds of rock and concrete to old automobiles and tires, rapidly attract a large assemblage of organisms.

> ...Some fishes are attracted to artificial structures within hours after construction and may yield fishing success of two to three times that in natural areas (Turner et al., 1969). A stable assemblage of organisms similar to that observed in natural structures is completely established in about 5 years (Turner et al., 1969). It is also likely that populations of pelagic fishes would become associated with dynamically positioned floating platforms in distant offshore areas (Wickham and Russell, 1974).
>
> ...Despite distance from ports of stable and floating platforms, benefits to sport fishing interests would be significant.

4.1.4 Other Impacts

The BLM proximity evaluation implies in DES (Vol 2, pp 328, 333) that structures placed within 5 miles of a seal rookery would have relatively high disruptive potential. This analysis is too simplistic and arbitrary to be meaningful in evaluating possible structural impacts on resources or activities in the OCS area. Use of 5 miles as a proximity criterion for evaluating potential impact on seal rookeries or on other mammals is highly questionable. A further discussion of impacts on marine mammals is in Section 4.3.2 of this report.

4.2 PIPELINE EMPLACEMENT

During the exploration and development phases of the Southern California OCS program, about 1,580 miles of oil pipeline, and 1,850 miles of gas pipeline would be laid (see WOGA, 1974, Vol 1, pp II-C-12 and II-C-17). The lines would be laid in specially designed corridors totalling perhaps 200 to 300 miles and perhaps up to 400 miles in length (see Vol 1, Figure 2). The width of those corridors would not exceed 400 feet in maximum water depth. Corridor widths probably would be considerably less in areas of shallower water.

Those sections of the pipeline located in water shallower than 200 feet, would be buried when possible in accordance with DOI OCS Order No. 9 to avoid obstruction of navigation and fishing.

In areas where pipeline burial would be appropriate, it would be accomplished by hydraulic jetting (high-pressure water jets which excavate sediment from beneath the pipeline allowing the line to sink into the resulting trench). The jets partially lift the sediments and deflect them to the sides of the trench. Then the suspended sediments settle along either side of the trench where natural processes eventually restore the original bottom configuration.

If pipeline emplacement involved pulling or dragging sections of pipelines across shorelines, this would be accomplished only along sandy shorelines. Pipelines would not be located in sensitive areas, such as marshes and estuaries.

4.2.1 Impact on Water Quality and Marine Biota

Unburied sections of pipeline would likely have a beneficial impact in that their surface would provide a substratum for settlement and growth of sessile encrusting forms, which in turn constitutes a source of food for predators. Whereas many species of fish might otherwise avoid the areas traversed by the pipelines, the greater availability of food organisms and other habitat features of the pipeline (perhaps vertical relief) are likely to attract them.

As to the impact of the pipeline trenching and burial process, Dames & Moore (1974, p 5-31) states:

> This process would have the effect of displacing benthic organisms and would result in direct mortality to softer life forms and indirect mortality to others through increased vulnerability to predators. Suspension of sediments with subsequent redeposition "downstream" would cause some burial and suffocation of less motile benthic organisms...

Although these effects would be adverse, they would be of such limited geographic extent that they probably would not be of measurable significance to the overall status of the ecosystem.

The duration and extent of turbidity produced by trenching would be a function of sediment size, current velocities, and the duration and extent of trenching activities. Such turbidity would be virtually no different in character from that associated with fresh water storm runoff, but, by comparison, would be several orders of magnitude more limited in duration and geographic extent.

Further, it is important to note that--with a few exceptions--pipeline trenching and burial, and thus the associated impacts, would be restricted to six or eight locations where the pipeline corridors come ashore.

The BLM DES (Vol 2, pp 73, 194, 131) generally concurs that the impacts from pipeline emplacement will be minor and includes the statement (p 73):

> The effects of the turbidity on a given parcel of water is of short duration, lasting on the order of a few hours at the most.

However, the BLM DES (Vol 2, p 191) expresses concern about:

> ...Areas in which drilling will resuspend polluted materials (areas in which sanitary, industrial and ocean dumping disposal material has accumulated) could have an irreversible significant impact on the marine aquatic environment. An impact would thus result in any areas in which drilling would release toxic chemicals, biostimulatory agents, or oxidizable matter into the water column. The magnitude of the impact will depend on the material resuspended... .

The BLM DES (Vol 2, p 104) also states:

> ...Resuspension of polluted sediments will result if pipeline laying or drilling operations occur by the outfalls in Santa Monica Bay or Palos Verdes Peninsula... or, to a lesser extent, much of Santa Monica Bay and nearshore areas off Los Angeles. Direct kill to benthic organisms will be of limited but unqualifiable extent and duration. Pesticides will be accumulated in the food chain as the result of ... [pipelaying] ...in these areas. This could be detrimental to certain individuals at the top of the food chain, although no widespread population fluctuations will result from these operations... .

In order to place this concern regarding the magnitude of possible impact in perspective, it should be recognized that the nature and extent of the possible impacts from resuspension of sediments containing potentially toxic materials are dependent on the interaction of a number of variables including (a) the volume, chemical composition, concentration, and solubility of the material resuspended, as well as (b) the dilution and diffusion conditions in the water column, and (c) the rate of settlement of the resuspended material.

Further, whatever the levels of such impact, it would almost certainly be of much lower magnitude than the impact associated with resuspension of polluted sediments by trawlers or in harbors and estuaries with relatively restricted circulation as a result of routine construction activities and day to day vessel operations.

4.3 LAND BASED FACILITIES

The 1974 WOGA study (Executive Summary, p 19) enumerates the land based facilities required for the projected OCS activities as follows:

240 acres of oil terminal and supply operations (including 65 acres of harbor and wharfage)

1 liquefied natural gas (LNG) regasification terminal (same terminal could be used for Alaskan or any other LNG)

In addition, the following floating units would be based at and would operate from the land based facilities:

3 (or more) oil-slick cleaning vessels
20 drilling vessels and 20 support boats
15 oil transports
15 personnel and cargo transports
70 mud and supply barges
2-5 LNG carriers

4.3.1 General Impact of Land Based Facilities

Platform construction, confined generally to modular fabrication in existing shipyard areas with final assembly onsite, would have minor environmental impacts. During construction phases, additional industrial lands (not necessarily within Southern California) might be involved in fabricating platform sections. Such areas very likely would have usage as shipyards and drydocks.

Some construction impacts might be involved if a cleanup base were established on an offshore island, but such impacts could be minimized by confining disturbed areas to the vicinity of currently existing facilities.

4.3.2 Impacts on Marine Mammals

A major concern expressed repeatedly in the BLM DES (Vol 2, pp 65, 107, 108, 152, 155, and 156) is the possible adverse impacts of OCS activities and facilities on pinnipeds (sea lions, seals) and sea otters. Specifically, the text states or implies that OCS activities and facilities could (a) cause abandonment of pinniped rookeries and result in elimination of these animals from Southern California waters, and (b) preclude reestablishment of the sea otter. The BLM DES, however, ignores present evidence that negates these speculative concerns. Because of the significance of these sea mammals, it is important that the question of OCS impact upon them be reviewed in light of important recent studies.

There is no question that Southern California pinnipeds are sensitive to human harassment. For example, the National Marine Fisheries Service (1973) reports the following regarding the California sea lion (_Zalophus californianus_):

> California sea lions associated with certain hauling grounds and rookeries have practically abandoned these areas because of harassment. Major populations are now located only on sites not easily reached by the public.

On the Northern Sea lion (Eumetopias jubata), it is stated that:

> Excessive disturbance by humans of sea lions on their rookeries and hauling grounds has caused the animals to abandon these areas.

Regarding the Harbor seal (Phoca vitulina):

> This animal is extremely sensitive to disturbance and may leave an area temporarily or even permanently after continual harassment by people, equipment, or aircraft.

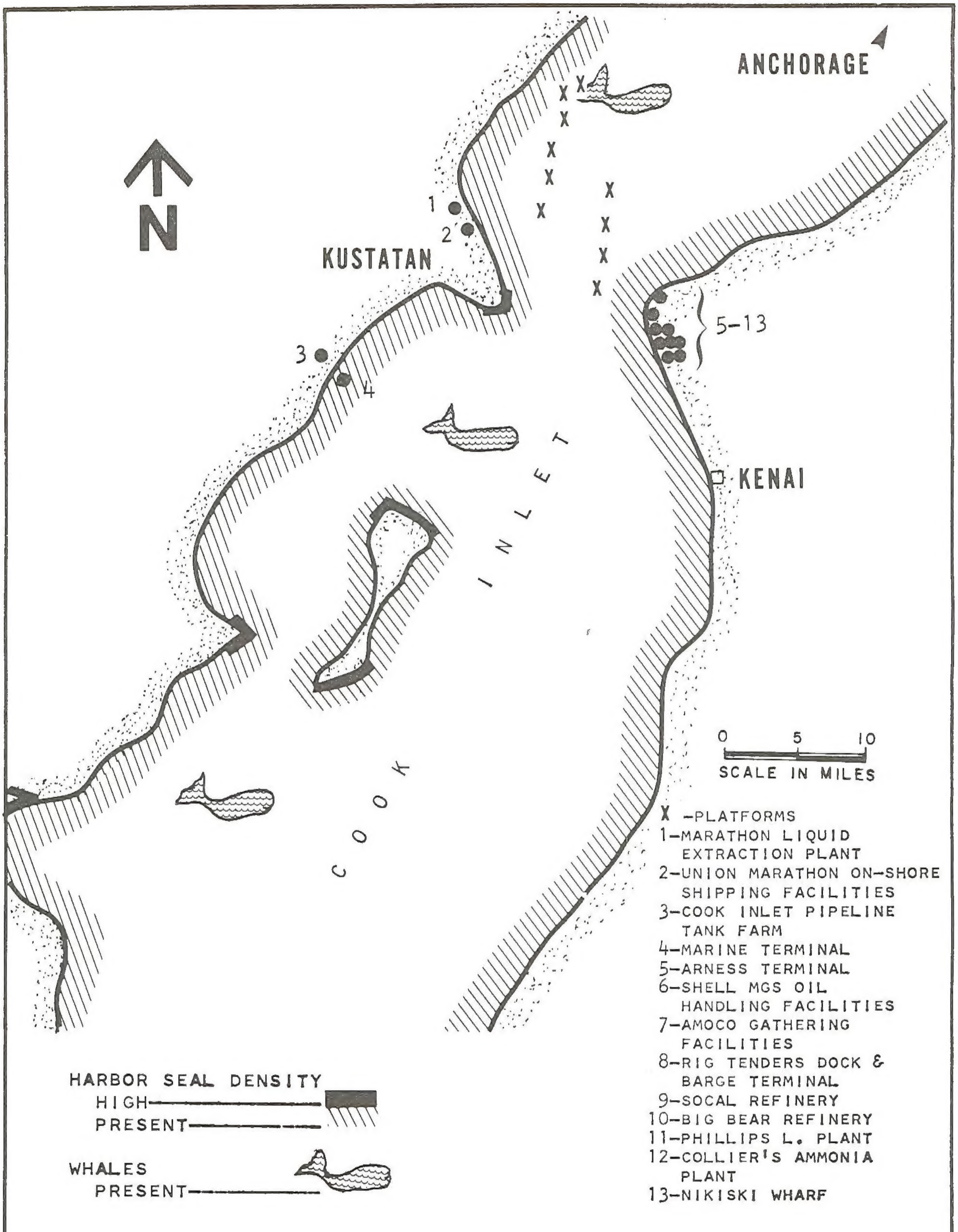
However, the level of harassment required to induce abandonment of rookeries is an unknown.

At the present time, it is not anticipated that any OCS developments will increase public access to pinniped rookeries. Also, it should be borne in mind that developments onshore any of the Channel Islands will require special approval from local governmental agencies. If land based facilities are placed on the Channel Islands, priority would be given to candidate sites located well away from pinniped rookeries. The facilities would be located within fenced areas and would not be open to the public. Aircraft and vessel transportation corridors or routes would be established at a distance from rookeries sufficient to preclude disturbance.

According to Daugherty (1966) California sea lion populations are the subject of a long-standing controversy. In more recent years, policy has fluctuated between strict protection and killing them in response to public pressure to reduce their numbers. Although they are protected now, commercial and sport fishermen are allowed to kill California sea lions when they interfere with fishing. As previously mentioned, continued harassment by humans apparently causes the mammals to seek other rookeries. But contrary to the implication in the BLM DES, it seems reasonable to expect that if the OCS development occurs, the local populations would find rookeries elsewhere in the Channel Islands, rather than completely abandon the area. California sea lions and Northern (Steller) sea lions use hauling out grounds at Seal Rocks near the Cliff House in San Francisco, despite human proximity.

The proximity evaluation in BLM DES (Vol 2, pp 328-333) assigns a high proximity value to lease tracts if structures would be erected within 5 miles of seal rookeries. This is apparently on the assumption that seal rookeries are subject to a relatively high disruption potential from structures (see also p 437) within that distance.

However, despite the apparent sensitivity of the harbor seal, it is known that these mammals are abundant near oil platforms, shipping facilities, and a liquid extraction plant in Cook Inlet, Alaska (see Figure 4.1-1). Representatives of the Alaska Department of Fish and Game in Anchorage are of the opinion that, although no accurate population counts for Cook Inlet currently exist for animals such as the


ANCHORAGE
N
KUSTATAN
KENAI
COOK INLET
1
2
3
4
5–13
0 5 10
SCALE IN MILES
X –PLATFORMS
1–MARATHON LIQUID EXTRACTION PLANT
2–UNION MARATHON ON-SHORE SHIPPING FACILITIES
3–COOK INLET PIPELINE TANK FARM
4–MARINE TERMINAL
5–ARNESS TERMINAL
6–SHELL MGS OIL HANDLING FACILITIES
7–AMOCO GATHERING FACILITIES
8–RIG TENDERS DOCK & BARGE TERMINAL
9–SOCAL REFINERY
10–BIG BEAR REFINERY
11–PHILLIPS L. PLANT
12–COLLIER'S AMMONIA PLANT
13–NIKISKI WHARF
HARBOR SEAL DENSITY
HIGH
PRESENT
WHALES
PRESENT

PETROLEUM INDUSTRY AND HARBOR SEALS IN COOK INLET, ALASKA

REFERENCE: FROM ALASKA WILDLIFE & HABITAT, ALASKA DEPARTMENT OF FISH AND GAME, 1973, (SILVA AND CHAMBERLAIN, 1975)

DAMES & MOORE

FIGURE 4.3-1

harbor seal and beluga whale, these animals do not appear to be adversely affected by oil-related development and production (Schneider, 1975).

In addition, these seals in Cook Inlet were hunted during the late 1950's and early 1960's, during which time thousands were shot or dynamited to reduce their numbers. Despite this insult, they have not left the area. Even with increased human activity in the area, including tanker operations, their numbers have been steadily increasing since they came under Federal protection (Rosenthal, 1975).

It seems reasonable to conclude that with prudent planning there is no reason to assume that OCS activities, as presently envisaged, would incur harassment to pinnipeds at levels that would cause them to abandon existing rookeries.

The sea otter also has been increasing in numbers in the Prince William Sound area since the turn of the century, despite increasing human activity. From near extinction levels, their population has grown to about 5,000 individuals (Pitcher and Vania, 1973). The otters are now spreading up the Sound to the Valdez region, an area of intense petroleum-related activity (Rosenthal, 1975). Although a number of sea otter mortalities have been observed in lower Cook Inlet, possibly due to illegally dumped tanker ballast, there is no basis for the contention that onshore or offshore facilities associated with OCS could disturb potential habitats of the sea otter to the extent that reestablishment of otter populations off Southern California would be precluded.

5.0 OIL SPILL ANALYSIS

5.1 SPILL STATISTICAL ANALYSIS

5.1.1 Corrected BLM Data

The BLM DES (Vol 2, pp 10-43) presents a detailed account of historical oil spill records, and then (p 10) makes an attempt to:

> ...predict the number of impact-producing events and quantities involved which will result if this proposed lease sale is conducted.

The data base used in making these predictions is cited on page 15 as:

> ...Data supplied by the Geological Survey for the period of 1964-1974 (includes only first quarter of 1974) indicating a total of 44 oil spill incidents connected with Federal OCS oil and gas operations in the Gulf of Mexico involving 50 bbl or more of oil and condensate... .
>
> ...predictions will be made by comparing the volumes of these spills and the total production of oil and condensate during the same period, 2.9 billion bbl.

Their resulting analysis culminates in a table entitled "Annual Rate Oil Spill Summary" (Vol 2, p 38) that indicates annual oil spillage of 82,695 to 116,087 bbl under high development case production of 360 million bbl per year.

Review and examination of the original U.S. Geological Survey (USGS) data indicates that the BLM projection of annual spillage is substantially too high due to apparent computational errors, inconsistencies in applying the data, and unsubstantiated assumptions. Furthermore, their predictions are based only on Gulf of Mexico operations, and do not include data from the Pacific area, which would be more pertinent to the proposed lease sale.

Reanalysis of the same historical data base used by BLM (Gulf of Mexico OCS operations, 1964 through the first quarter of 1974) shows that the correct figure for projected annual oil spillage under high development case production should actually be 24,940 bbl, which is less than 20 to 30 percent of the BLM estimates. Approximately the same figure (24,570 bbl) is obtained when the data base is extended through the end of 1974, and includes the Pacific area OCS operations. Pertinent features of this analysis are shown in Table 5.1-I. The historical oil spill factors used to make these spillage projections are presented in Table 5.1-II. To put spillage volume in perspective, in Table 5.1-III we compare all data available on persistent oil discharges to the Southern California Coastal Zone with the corrected values for high development OCS spillage. We found that surface runoffs and sewage discharges contribute about 1,200 bbl per day (BLM DES, Vol 3, p 495), that natural oil seeps contribute 100 to 400 bbl per day (WOGA, Vol 3, p 3-68) and that new OCS operations could contribute up to 56 bbl (WOGA, Vol 3, p 5-39) of entrained oil per day from produced water discharges. Estimated average spillage per day from OCS operations is 68 bbl (24,940 bbl per year divided by 365 days per year).

TABLE 5.1-I

PROJECTED AVERAGE OIL SPILLAGE DURING PEAK PRODUCTION YEARS[1]

(BARRELS PER YEAR)

TYPE, SOURCE, AND CAUSE OF SPILL	ORIGINAL BLM FIGURES	CORRECTED BLM FIGURES	EXTENDED DATA BASE FIGURES[2]
Spills Greater Than 50 bbl.			
Pipeline Accidents[3]	4,985	4,320	3,740
Well Blowouts During Drilling[4]	39,900	100	1,600
Spills from Platform Fires[5]	10,440	10,440	9,360
Hurricanes[6]	---	---	---
Platform-Related Overflows, Malfunctions, or Ruptures[7]	194	1,480	1,400
Ship Collision with Platforms[8]	5,040	320	290
Tanker/Barge Accidents and Transfer Operations[9]	20,036 to 53,428	6,340	6,340
Minor Spills (less than 50 bbl.)[3]	2,100	1,940	1,840
	82,695 to 116,087	24,940	24,570

Notes:

1. Peak production is assumed to be 360 million barrels per year. The spill projections are based on historical spill statistics and on BLM's estimate that 80 percent of the oil will be pipelined to shore; the other 20 percent will be lightered.

2. The extended data base includes the Pacific area, as well as the Gulf of Mexico, and extends from 1964 through the end of 1974.

3. BLM apparently used 1970-1973 production as a basis for their projection, and did not include first quarter 1974 production.

4. BLM apparently used 1964-1972 well drilling data (Gulf of Mexico only) and made an error in computing blowout frequency (0.35 percent instead of 0.035 percent). They apparently further assumed that all 5,000+ wells would be drilled in a single year. A more reasonable estimate is that no more than 160 wells would be drilled during any one of the peak production years (the average over the project lifetime is about 80 wells per year). The extended data base figures include the Santa Barbara blowout, which is estimated at 75,000 bbl instead of the lower figure cited in the USGS statistics.

5. BLM does not include in this category a production well blowout and fire that spilled 500 bbl oil. Previous BLM environmental statements, however, have included this event.

6. No prediction is made in concurrence with BLM's reasoning that hurricane frequency is negligible for southern California.

7. BLM identifies 12 events that resulted in spillage of 1,558 bbl. They do not include five other events, all associated with some type of platform related failure, that spilled 10,410 bbl.

8. BLM's figure apparently is the result of a computational error.

9. BLM's figures are based on spill rates that are totally unsubstantiated and are at odds with all published findings on vessel casualty statistics. The most reliable figures applicable to the OCS lease area under consideration are 85 ppm of volume handled (see text of report for further discussion). In addition to this casualty spill factor, 2 ppm due to vessel loading oeprations, and 1 ppm due to vessel unloading operations have been added.

TABLE 5.1-II

COMPARISON OF HISTORICAL OIL SPILL FACTORS

Spill Type/Source/Cause	Original BLM Figures[1]	Corrected BLM Figures[2]	Extended Data Base Figures[3]
Pipeline Accidents	17 ppm[4]	15 ppm	13 ppm
Well Blowouts During Drilling	0.73 bbl/well[5]	0.62 bbl/well	10 bbl/well[6]
Spills from Platform Fires	29 ppm	29 ppm	26 ppm
Platform-Related Overflows, etc.	0.54 ppm	4.1 ppm	3.9 ppm
Ship/Platform Collisions	0.88 ppm	0.88 ppm	0.80 ppm
Tanker/Barge Accidents and Transfer Operations[7]	300 to 800 ppm	88 ppm	88 ppm
Minor Spills	5.8 ppm	5.4 ppm	5.1 ppm

---

[1] Either stated specifically in the BLM report or inferred on the basis of supporting discussion. Data base is Gulf of Mexico OCS operations, 1964-1974 (first quarter only).

[2] Determined from original USGS records for the same data base identified in Note 1.

[3] Determined from original USGS records; data base is total OCS operations, 1964-1974.

[4] Parts oil spilled per million parts oil produced.

[5] Barrels oil spilled per well drilled.

[6] Assumes 75,000 bbl spilled from the Santa Barbara blowout instead of the much lower figure cited by USGS.

[7] Not based on USGS data, but on worldwide tanker casualties within 50 miles of land for the 4-year period 1969-1972. See text of report for further discussion.

TABLE 5.1-III

OIL DISCHARGES FROM HUMAN AND NATURAL SOURCES
(Barrels per Day)

Surface Runoffs and Sewage Outfalls	1,200
Entrained in Formation Water Discharged from OCS Operations	56
Natural Oil Seeps	100 to 400
Estimated Spillage from OCS Operations	69

One of the major discrepancies in the BLM DES is the estimate that 300 to 800 barrels of oil will be spilled for each million barrels of oil transported to shore by lightering vessels. These figures are totally unsubstantiated and are also in disagreement with statements made elsewhere in the BLM DES (Vol 2, p 41 and pp 205-208). The following discussion is provided to clarify this issue and to present a more realistic basis for estimating spills due to lightering vessel casualties.

One of the first analyses of worldwide tanker casualty spills was performed by Porricelli, Keith, and Storch (1971). They identified 1,416 casualties for worldwide tanker traffic for the 2 years 1969 and 1970. Of these, 266 resulted in oil spills producing a total of 431,000 tons of spilled oil, or 216,000 tons per year. At an average worldwide oil traffic rate of 1.34 billion tons per year, this amounts to 161 ppm spilled by tanker casualties for all oil carried.

A study of worldwide tanker casualties for 1971 and 1972 performed by the J. J. Henry Company (1973) for the

USCG found a total of 1,567 tanker casualties, of which 376 resulted in oil spills (restricted to tankers of over 100 Gross Registered Tonnage [GRT]). The total volume of oil released was 439,000 tons for the 2 years together, which yields an average emission rate (based on 1.57 billion tons per year world oil traffic) of 140 ppm of total oil carried. The average emission rate for the 4-year period (1969-1972) was 149 ppm.

A more recent compilation by Card, Ponce, and Snider (1975) combined the previous two studies and added 1973 data, reporting 452 polluting casualties for the years 1969-1973, for tankers weighing over 3,000 deadweight tons. The total oil outflow was 951,000 tons. When this is averaged over the 5 years, and divided by an assumed average of 1.5 billion tons of oil carried per year, the emission rate is 127 ppm. This estimate is somewhat lower than the previous two estimates, possibly because of the restriction in size of the tankers considered. To be perfectly consistent, the emission rate should be determined on the basis of the smaller total oil volume that these larger tankers handle, but that figure is unavailable.

Another restricted study, this time for the years 1969 to 1972, was performed by Devanney and Stewart for the Council on Environmental Quality (MIT, 1974). They examined the traffic on 12 major tanker trade routes, estimated to be 29 billion barrels for the 4-year period. They identified 99 casualty spills along these routes greater than 1,000 bbl in magnitude, which produced a total spill volume of 4.8 million bbl. For the traffic estimated, this implies a spill rate of 165 ppm.

The four studies just described did not use completely independent data bases, but they did indicate a tendency for different investigators to come up with fairly similar figures. These studies also indicated that open-ocean spills tend to be over three times as large as those in coastal areas (within 50 miles of land). Because the proposed lease sale will involve lightering vessel traffic in coastal areas only, casualty spill projections should be based on historical spillage occurring within coastal waters.

A study performed by Keith and Porricelli (1973) categorized the 1969 and 1970 tanker casualty data into events occurring in coastal areas (less than 50 miles from any shoreline) and events occurring in the open oceans (more than 50 miles from any shoreline). A similar breakdown was reported for the years 1971 and 1972 in the study done by the J.J. Henry Company (1973). The two studies gave a combined total of 496,000 tons spilled in 522 polluting casualties within the 50-mile limit. Allocating this over 4 years and dividing by the 1.46 billion tons of oil shipped per year gives an emission rate of 85 ppm. This figure is considered to be the most pessimistic historical spill factor for projecting (on the basis of volume transported) the quantity of oil that might be spilled due to lightering vessel casualties associated with the proposed lease sale.

In addition to the potential spillage from casualties, small spills are also likely during lightering vessel cargo transfer operations. Two transfer operations are required for each lightering vessel trip: loading from a moored offshore processing/storage facility, and unloading to an onshore receiving facility. In a study prepared for Washington State (1974), data for offloading single-buoy and conventional-buoy mooring systems indicated a spill rate of about 0.3 ppm, based on a volume handled of 1.2 billion bbl. Another study of offloading cargo transfer systems (COFRC, 1975) shows a spill rate of about 1.0 ppm, based on 1.4 billion bbl of oil handled. The latter historical figure is adopted in the present analysis as a pessimistic estimate for projecting offloading spill volumes.

No statistical spill data are available that apply to the type of lightering vessel loading operations planned for in the proposed lease sale development. However, there is reason to believe that cargo transfers between two floating vessels may produce more oil spillage than an offloading transfer from a single floating vessel. On this basis, a spill rate twice as great (i.e., 2 ppm) is used as a pessimistic estimate. The total cargo transfer spill rate is then 3 ppm, based on the volume of oil lightered. This figure is twice that cited in the BLM DES (Vol 2, p 205) based on USCG data.

5.1.2 Operating Improvements

Future spill projections, based on average historical spill data from old or existing facilities appear to be highly pessimistic when applied to new facilities such as those in the proposed OCS development plan. These projections do not take into account the technological and operating improvements made since 1964, such as (1) methods for controlling and monitoring pipeline corrosion, (2) techniques for early detection of pipeline leakage, (3) drilling blowout preventors and mud system safety controls, (4) spill prevention training programs for industry personnel, and (5) navigation aids for shipping.

Using the BLM methodology, estimates were made of transportation vessel casualties and pipeline accidents based on operating improvements that should occur between now and about 1980. We changed their technique for platform spill analysis to a platform-year method, which equates spill risks to number of structures rather than volume produced or number of wells in a development.

This is a major shift in technical application and more intrinsically safe. Projected annual accidental spillage based on this analysis for 1980 technology improvements will be approximately 5,710 barrels per year in the peak production year (see Table 5.1-IV). It should be noted that this projection is approximately 25 percent of the corrected BLM estimate shown on Table 5.1-I.

In the judgment of WOGA's industry experts, such improvements would be expected to reduce by 50 to 75 percent the historical spill rates for pipeline accidents, drilling blowouts, and tanker/barge spills.

We believe that the oil spill potential of future OCS operations from platforms will be more likely a function of the number of opportunities for spills to occur (platform-year method) than of the volume of oil produced. For example, we would expect the spillage from 10 wells, each producing 1,000 barrels per day, to be less than that from 100 wells, each producing 100 barrels per day (even though the volume produced is 10,000 barrels per day in each case). Because the first case has fewer wells and fewer independent units subject to failure, opportunities for spills would be correspondingly less. Likewise, we would expect the spillage from one 30-well platform to be less than from five 6-well

TABLE 5.1-IV

ESTIMATED AVERAGE OIL SPILLAGE DURING PEAK PRODUCTION YEARS BASED ON ADVANCED TECHNOLOGY[1]

Type, Source, and Cause of Spill		Barrels per Year
Spills greater than 50 barrels		
Pipeline accidents[2]		940
Well blowouts during drilling[3]		800
Spills from platform fires[4]		710
Hurricanes		-
Platform-related overflows, malfunctions, or ruptures[4]		110
Ship collisions with platforms[4]		20
Tanker/barge spills[5]		2,990
Casualties	2,880	
Transfer operations	110	
Minor spills less than 50 barrels[4]		140
TOTAL		5,710

Notes:

[1] Peak production is assumed to be 360 million barrels per year. The spill estimate is based on BLM's projection that 80 percent of the oil will be pipelined to shore; the other 20 percent will be lightered.

[2] Assumes that advanced technology will reduce the historical (1970-1974) spill rate by 75 percent.

[3] Assumes that advanced technology will reduce the historical (1964-1974) spill rate by 50 percent.

[4] Assumes that advanced technology will reduce the historical (1964-1974) spill rate per platform per year by 25 percent.

[5] Assumes that advanced technological improvements, traffic control, and regular inspection of vessel structural integrity will reduce the historical (1969-1972) structural-failure casualty frequency by 75 percent; the frequencies of all other casualties and cargo-transfer spills, by 50 percent.

platforms. The single, large structure would be less susceptible to ship collision and would have fewer independent mechanisms subject to failure. For these reasons, we have estimated the future platform-related spillage (i.e., platform fires, overflow/malfunctions, ship collisions with platforms, and minor spills), based on historical spillage per platform per year, to be reduced by 25 percent to reflect expected further adjustments in technology.

5.1.3 Recurrence Intervals

For future planning purposes we also determined the average recurrence interval for various spill sizes ranging from 5,000 to 100,000 barrels. Table 5.1-V shows these values.

For example, a 75,000 bbl spill approximates the latest BLM estimate of the 1969 Santa Barbara event. We would expect such a spill to recur once every 143 years from drilling and platforms, once every 277 years from marine transports, or once every 94 years when combining all hazard classes. The methodology for computing recurrence intervals is outlined in the following paragraphs.

The largest size spills are expected to come from one of two general source classes: tanker/barge casualties, or drilling/platform spills. The OCS operations must be concerned with the frequency of occurrence of these larger spills. These frequencies are most conveniently expressed in terms of the recurrence interval for a spill of a particular size. These recurrence intervals are computed from the cumulative distribution function for the spill sizes actually observed in historical data. The distribution type selected for both classes

TABLE 5.1-V

ESTIMATED RETURN PERIOD FOR MAJOR OIL SPILLS BASED ON ADVANCED TECHNOLOGY

	Average Recurrence Interval, Years		
Spill Size (Barrels)	Tanker/Barge Casualties	Drilling and Platform Spills	All Causes
5,000	8	22	6
10,000	14	31	10
20,000	33	45	19
40,000	91	76	41
60,000	176	113	69
75,000	277	143	94
80,000	307	153	102
100,000	492	201	143

The estimated spillage resulting from marine transport of 360 million barrels per year into Southern California (assuming the same technological improvements as in Note 5 of the Phase 2 table) would be 14,560 barrels per year.

of spills was the log normal, since it gives a fairly good agreement with the actual data, and is reasonably conservative (giving higher probabilities for the occurrence of the larger spills than would some other common distribution, such as the negative exponential).

For platform and drilling spills, only 7 events greater than 500 barrels have occurred in U.S. coastal waters. An estimate of the cumulative distribution function for this process was obtained by plotting these seven points on log normal probability paper. The recurrence frequency (reciprocal of the recurrence time) was then obtained by taking one minus the cumulative distribution function for the particular spill size of interest and multiplying this difference by the projected frequency of occurrence of spills 500 barrels or larger during the peak production years for the OCS project. The projected frequency of occurrence represented a simple extrapolation based upon the expected number of wells to be drilled and platforms to be operated (including floating processors and drill ships). The spill frequency resulting from the process was then reduced to reflect the safety improvements expected during the OCS operations.

For tanker/barge casualties, the data summary which was used in this analysis was prepared in support of testimony given by Russell Train to the Senate Commerce Committee, March 6, 1973 (Porricelli, 1973). Spills (worldwide) for 1969-1970 occurring within 50 miles of the coastline which were larger than 50 barrels were aggregated into five categories, and the resulting frequencies tabulated in the supporting document for the testimony given by Russell Train. The largest of the five categories contained only one data point, a 340,000 bbl spill. This data point was not included in our data base, since it is larger than the maximum credible spill which could occur under OCS operation. The two parameters of the log normal distribution were then fit to the remaining four points, yielding a geometric mean spill size of 2,554 barrels and a standard geometric deviation of 1.43. The cumulative probabilities were then computed from the standard table of the normal distribution. Finally, the recurrence interval was computed by the same method as for platform-related spills which was described in the previous paragraph (taking the complement of the cumulative probability, multiplying by the projected frequency of occurrence, and then taking the reciprocal of the product).

The recurrence interval for a spill of greater than a specified size with either one of the two types of source (all causes) is simply the reciprocal of the sum of the reciprocals of the recurrence intervals for the two individual probability classes. For example, the return period for a tanker/barge casualty resulting in a spill of 5,000 barrels or more is 8 years, and the corresponding return period for drilling/platform spills is 22 years. The return period for either one of the two sources is the reciprocal of the reciprocal of 8 plus the reciprocal of 22, or 6, as shown on Table 5.1-V.

5.2 OIL SPILL MOVEMENT

5.2.1 Proximity Evaluation

The proximity evaluation in BLM DES (Vol 2, pp 320-348) relates each tract to a set of prescribed resource factors through the use of a "proximity scale." The proximity values are then used to determine which tracts have relatively high hazard, disruption, and/or aesthetic degradation potential based on certain subjective criteria. The overall purpose of this analysis is to determine:

> ...the relative environmental risks posed by each tract. [emphasis added]

Basically the same type of analysis is carried out in the section "Alternatives to the Proposed Action" (Vol 3, pp 437-442) with regard to the protection of pinnipeds and other "Areas of Special Biological Significance" (ASBS).

The concept of defining some quantifiable, relative measure of potential environmental impact to each tract is valid. However, the methodology pursued by BLM has enough serious deficiencies and questionable subjective criteria to render the final results of doubtful value. It is recommended that a more refined analysis be conducted, while retaining the same general objective of differentiating the tracts with respect to their potential for environmental impact.

BLM defines 13 natural and cultural resources and multiple-use activities as the "significant resource factors" by which the tracts are to be measured. The aptness of the biological resource factors is discussed in Section 5.4.1 of this report. Also, it should be noted that many of the factors are strongly interrelated. For example, whenever the factor "kelp beds" is impacted, either the "rocky shore" or "sandy beach" resource will be impacted. This amounts to double-counting single impacts.

Impacts on the various resources can occur through oil spills interacting with the resource or structures existing within specified distances. Our comments here will focus on the oil spill impact.

Spilled oil is presumed to move in the direction of the wind at 3 percent of the prevailing wind speed. Based on an annual average wind speed of approximately 13 knots in the Southern California OCS area, this translates into a 0.4 knot oil spill drift rate. However, the extensive wind frequency data that are available for this area were not used to determine the direction of drift. Rather, it was assumed that the spilled oil continuously drifts at a constant speed directly toward the nearest resource for up to 60 hours. This is an overly conservative assumption, and is not justifiable in light of the analysis being made and the data available on wind speed and direction frequency.

Oil spill drift due to water currents is not considered. Yet, currents equal to 0.4 knot are not uncommon in the California Bight. By making the usual assumption that oil drifts at a rate equal to the vectorial sum of the water current plus 3 percent of the wind speed, spill drift patterns markedly different than those used by BLM would be obtained.

Finally, a proximity rating for each tract/resource pair is established based on an arbitrary scale of distance (or, equivalently, time for a constant spill drift rate) for the minimum separation distance. Spill size and response time enter, at best, implicitly in this scale.

As discussed in Section 5.3.1, distance to a resource may not be a valid measure to use for analysis of potential impact for some of the specified resources. However, if we assume for the sake of the discussion that physical tract/resource separation is a meaningful measure, then the proximity scale as defined by the BLM has two weaknesses. First, the scale appears to be quite arbitrary; it would be possible to significantly alter the results of the study by merely redefining the proximity scale definition. More importantly, the distribution of any one resource throughout the area of interest is not included in the proximity calculation. This will have importance when, for example, the prevailing winds and currents would tend to carry an oil spill away from the nearest resource, but toward other areas of the same resource or different resources not otherwise considered for that tract.

The summary risk analysis based on the proximity scales considers tract/resource pairs having only the highest proximity rating of 1. For oil spills, this is equivalent to assuming that if the oil takes less than 12 hours to reach the resource, it has the maximum impact; if it takes more than 12 hours, it has no impact at all. This is an "either-or" analysis that does not allow for degrees of impact or their probability of occurrence.

The BLM defines three types of environmental impact: (1) hazardous to ecological resources, (2) disruptive to multiple-use activities, and (3) degradative to aesthetics. A tract falls into each of the categories when it has either oil spill or physical presence impact on any one of a certain combination of the 13 resources being considered. Here again, this approach suffers from the arbitrary definition of the three categories of environmenal impact, and from the criteria used to determine whether a tract falls into that category. In particular, the impact due to the presence of structures is given a weight equal to the impact due to oil spills.

The final result of the BLM proximity and risk analysis is that 237 (incorrectly stated in the BLM report as 249) of the 297 possible tracts--which is 80 percent--have relatively high potential for one or more of the 3 types of environmental impacts. This conclusion is of little value since it implies that most of the tracts may have some type of environmental impact but does not permit a meaningful ranking of the tracts on a scale of relative impact--the stated objective of this analysis.

As stated earlier, we believe that the ultimate objective is valid. With respect to environmental impact the results would be useful for the assessment of various alternatives to the proposed action. Using presently available data, it should be possible to develop a meaningful ranking of the 297 tracts. The remainder of this section contains a brief discussion of possible approaches to the oil spill impact problem.

Any analysis must begin with a careful definition of existing resources that may be affected by an oil spill including a consideration of the mode of oil/resource interaction. The latter aspect also permits evaluation of physical separation as the measure of proximity.

Modeling oil slick centroidal velocity as the vectorial sum of 3 percent of the wind velocity plus the water current is sufficiently accurate for this analysis. Reasonably detailed water current data are available for the Southern California Bight. Currents must be included to get a valid description of spill movement.

Wind information can be derived from wind frequency data for the OCS area (U.S. Navy, 1970). Knowing the spatial distribution of the resource being considered, these wind and current data can then be used to deduce the potential impact of a given tract on all occurrences of that resource in terms of a probability of impact.

A more sophisticated approach would involve the use of Monte Carlo techniques to simulate oil slick drift. To be feasible, additional information on wind persistence would be required. The advantage of this approach is that it is unnecessary to specify an arbitrary lower limit for slick drift time. Again the results would be in the form of probability of impact for each tract/resource pair. The resultant probabilities for all resources can then be combined to give a probabilistic measure of any tract's potential for environmental impact. This is the desired measure of risk that can serve to rank the tracts. This approach also retains the distinction between oil spill and structural impact while permitting them to be combined in subsequent analyses to get a total measure of impact.

5.2.2 Spill Scenarios

In Volume 2 of the BLM DES, various oil spill scenarios are presented to give the reader an idea of the extent to which spilled oil might contaminate water and shoreline areas. Unfortunately, these scenarios present an incorrect and unrealistic picture because of improper application of theoretical models for predicting oil spill spread and drift.

As an example, an accident scenario is presented in BLM DES (Vol 2, p 231) where an oil-laden barge founders on rocks or in heavy surf and spills 2,000 to 3,000 barrels of oil. The statement is made that:

> This would result in an instantaneous calm water spread of about 0.24 square miles or a 2900-ft diameter slick.

This projection of oil slick growth is inconsistent with standard and accepted methods for analyzing oil spill incidents, such as those developed by the USCG (Waldman et al., 1973). If, for example, "instantaneous" were taken to mean 1,000 seconds after the release of oil, the expected slick area would be about 0.013 square mile, or about 1/20th of the figure cited by BLM. Furthermore, about 11 hours would be required for the slick to reach a diameter of 2,900 feet. This amount of time could well permit cleanup crews to arrive and thus reduce the impact on shoreline usage.

The BLM scenarios for a major oil spill (Vol 2, pp 57-60) are modeled after the Santa Barbara blowout incident. The "large spill" scenario is considered to involve 100,000 barrels and extend over a 60-day period, with an oil release rate of 5,000 barrels per day (bpd) for the first 11 days, and 900 bpd for the next 50 days. Three separate cases of this "large spill" scenario are discussed below.

The Case 1 scenario considers a spill from a platform 3 to 4 miles from land, and a steady wind that moves the oil directly onshore at a velocity of 0.75 to 1 mph. Under these conditions, the BLM projections of intertidal area covered by oil are 1.6 to 3.6 miles after 4 hours, 2.7 to 72 miles after 1 day, 6.7 to 500 miles after 11 days, and 8.4 to -- (sic) after 61 days. The statement is also made that because of the short time (3-1/2 to 4 hours) required for the oil to reach shore, very little of the toxic fractions of the oil have been removed by factors such as evaporation.

All of these findings for BLM's Case 1 scenario are incorrect and unrealistic.

First, a drift velocity of 0.75 to 1 mph implies a wind speed of 22 to 29 knots (using the widely accepted assumption that oil moves at 3 percent of the wind speed). Under this condition, substantial evaporation can be expected to occur that would remove most of the toxic, low molecular weight fractions from the oil. Sivadier and Mikolaj (1973), for example, found that nearly 20 weight percent of an oil slick could evaporate within 1 to 2 hours in winds of only 8 to 12 knots.

With regard to BLM's selection of wind speed, it should be noted that coastal winds in the general offshore area of the proposed lease sale reach a 22-knot speed less than 5 percent of the time (U.S. Navy, 1970). When they do occur, they blow principally from west-northwest and northwest. Thus, with the exception of a few tracts in Santa Monica Bay, these winds would tend to move the oil downcoast rather than onshore.

However, accepting BLM's drift rate of 0.75 mph and distance to shore of 3.5 miles, computations of simultaneous spreading and drift based on Waldman et al., (1973) correlations reveal that the width of an oil plume arriving onshore would be about 1,300 feet, or about 0.25 mile. The figures cited by BLM (1.4 to 3.6 miles) were apparently derived by considering the maximum area a spill volume of 35,000 gallons might achieve, given sufficient time to spread.

After this initial impact, the oil plume arriving onshore would remain constant in size as long as the wind continued to blow in the same direction and at the same speed. This oil, approximately 0.007 centimeter (cm) in thickness, would enter the surf zone and then be transported alongshore by the prevailing littoral current. Over the coastal area of the proposed lease sale, this current could be expected to have an average velocity of about 0.68 mph, and typically move upcoast (westward) during summer months and downcoast (eastward) during winter months (U.S. Army Corps of Engineers, 1968).

As the oil moves along the coastline in the surf zone, wave action would tend to deposit it on beach areas at a dosage of perhaps 8 gallons per foot of beach length, which corresponds to the heavy oil contamination that occurred during the Santa Barbara spill (Foster, Charters, and Neushul, 1971). This surf zone oil layer would be perhaps 10 meters

(33 feet) in width and have a thickness of about 0.3 cm. The rate at which beach areas would become heavily coated by oil is estimated to be about 300 meters per hour (0.18 mph). Thus, after 1 day, the total intertidal area that would be heavily coated by oil is estimated to be about 3.8 miles.

The propagation of oil along beach front areas described above is consistent with the environmental conditions assumed by BLM in their Case 1 scenario. The predicted area of contamination after 1 day (3.8 miles) is in reasonable agreement with the minimum figure of 2.7 miles cited by BLM. However, the BLM maximum figure of 72 miles is totally unrealistic, and their comment that this estimate:

> ...is a very generous maximum...

is a gross understatement.

In order for oil to contaminate 72 miles of coastline within 1 day after a spill occurred, it would have to travel at a velocity of 2.6 knots. Assuming that typical surface currents are 0.3 knot from BLM DES (Vol 1, pp 74-84), the wind would have to be blowing in excess of 75 knots to produce the required 2.6 knot drift rate. Similar statements, although not quite as exaggerated, apply to BLM's estimate that 500 miles of intertidal area could be covered by oil after 11 days.

BLM's Case 2 scenario (oil remaining at sea for a week before going ashore) and Case 3 scenario (oil being deposited on the sea floor as a result of land-derived sediment inflow) are similarly fraught with unrealistic assumptions and improperly applied theory. Even for worst case conditions, these analyses should be redone for the final environmental statement, with careful attention being given to the reasonable application of facts and theory.

In conjunction with this recommendation that BLM reanalyze their oil spill scenarios, it is suggested that some indication of oil density be given, both as to open water oil coverage and to shoreline dosage. For example, the statement that 55,000 barrels of oil cover 500 square miles of open ocean neglects the established fact that most of this contaminated area would likely consist of thin iridescent film with scattered patches of darker heavy oil (Allen, 1969). Drawing upon the Santa Barbara oil spill, a reasonable estimate is that 80 percent of this 500 square miles would contain a total of only about 5,000 barrels of oil. Should this thin oil slick wash ashore, the impact to be expected is clearly different from that of a heavy oil slick.

Finally, as suggested in Section 5.2.3 of this report, these same scenarios should be analyzed under the assumption that reasonable mitigative measures have been undertaken to contain and clean up the spilled oil.

5.2.3 Oil Spill Containment and Cleanup

In at least 6 different places (Vol 2, pp 19, 57, 77, 91, 197, and 314) the BLM DES makes reference to potential spills, similar to the Santa Barbara blowout, that might involve 100,000 barrels of oil. Furthermore, in at least 4 places (Vol 2, pp 75 and 88) the statement is made that:

> "A major spill will ultimately occur...."

Scenarios presented for such a spill (Vol 2, p 59) suggest that upwards of 500 square miles of open ocean could be covered with oil. Following the presentation of these scenarios, many pages of the report are then devoted to an analysis of the impact to be expected from a large spill.

In contrast to this extended presentation of a major oil spill incident (which, as discussed elsewhere in this report, has a very low probability of occurring) less than two pages of the BLM DES (Vol 2, pp 380-381) are devoted to the current status of oil spill containment and cleanup technology. This is an obvious imbalance between discussion of potential adverse impacts, and presentation of information relating to mitigating measures that would significantly reduce these impacts.

An average reader of the BLM DES, not informed on the current status of containment and cleanup technology, would more than likely assume that a major oil spill, say the size of the Santa Barbara blowout, would have the same adverse impact as the Santa Barbara incident. This would be a false assumption.

This does not mean that no adverse impacts can be expected from a major spill. What it does mean, however, is that current oil spill cleanup technology will reduce significantly the amount of oil that will produce an adverse impact. This will be accomplished by containment of the oil at the spill source, barrier protection of significant resource areas, and removal of much of the oil from the ocean's surface. Furthermore, by the time peak production is expected to occur, advances in technology will minimize even the present damage potential of a major oil spill.

To fully inform the reader of what might be expected in the event of a major spill, the BLM DES should include scenarios of cleanup efforts similar to those presented for absolute worst case conditions of no cleanup activity in BLM DES (Vol 2, pp 57-60). Such cleanup scenarios should emphasize, not only the initial spill size, but more importantly, the volume of oil that may reasonably be expected to escape and thereby cause damage.

An example of the type of information that would put oil spill risk into proper perspective is given in a recent study performed by Cochran, Manney, and Fraser (1975). In this study, a computer simulation program was used to evaluate the effectiveness of oil spill contingency plans for a variety of spill types and sizes. An important feature of the program was the incorporation of wind and wave data to permit realistic estimation of containment and cleanup efficiency under potential adverse conditions.

Although the above study was performed using wind and wave data for the Gulf of Mexico, the findings should still illustrate what might be expected for the proposed lease sale area. In the case of a 24,000 bbl spill for which no containment measures are taken, a single skimmer could recover approximately 18 percent of the oil in the first 4 days. Beyond this time, recovery is difficult because the oil would have spread over a large area.

When the same spill is examined with containment efforts being undertaken, either by mechanical booms or surface tension "herders," the average expected oil recovery during the first 4 days increases to 81 to 90 percent. Thus, even though the oil release was 24,000 bbl, the effective size of the spill; i.e., the volume of oil that is available for producing damage, is less than 5,000 bbl. In the case of a 120,000 bbl spill, the study shows that 2 skimmers operating for 4 days can be expected to pick up an average of 70 to 83 percent of the spilled oil, depending on the effectiveness of the containment boom. With continued cleanup operations, the effective size of the 120,000 bbl spill could be expected to be reduced to considerably less than 10,000 bbl.

Additional information on the expected results of oil spill containment and cleanup measures is presented in the Dames & Moore study (1974), Chapter 6.2. This information, along with methods of analyses described above, should be used by BLM to emphasize that only a small portion of any major or moderate oil spill will escape mitigative action.

5.3 BIOLOGICAL IMPACTS

From an ecological standpoint, the potential for accidental release of oil to the environment represents the most critical aspect of OCS development. Although there is a need for additional basic research on the effects of oil in the marine environment, considerable information already exists as a result of a large number of laboratory investigations and field observations under actual oil spill conditions. Unfortunately, the BLM DES does not provide a concise overview or even an adequate review of these findings. Rather, possible effects are discussed in terms of major habitats and ecosystem components, thus leading to repetition of certain statements regarding possible impacts.

The major problem in the treatment of marine biology by BLM is that many suggestions of impacts are made without adequate qualifying statements. Because little attempt is made to quantify the implied effects on biota, the reader is required to address the magnitude of such effects without the benefit of knowing the likelihood of occurrence. In addition, statements are often made without citation of a literature source, so it is not always clear whether factual information or speculation is presented. In other cases, unsubstantiated speculation is obvious. Summaries at the ends of some sections do not effectively recap text discusssions. A uniform development of thought is lacking, due perhaps in part to multiple authorship.

5.3.1 Oil Spill Proximity Evaluation

The general concept and approach of the BLM oil spill proximity evaluation was reviewed and discussed in the previous section, along with some of the fundamental weaknesses of the technique used. This section addresses the biological aspects of the "significant resource factors."

The oil spill proximity evaluation in the BLM DES (Vol 2, pp 320-348) concludes that a relatively high hazard potential to "significant resource factors" is associated with 81 of the 249 tracts, based upon the proximity of the tracts to the resource factors. Significant resource factors for evaluating biological impacts of oil spills include refuge/wildlife management areas, kelp beds, bird rookeries, seal rookeries, rocky shore-intertidal areas, and sandy beach-intertidal areas. If a tract lies in close proximity to any of these items, it is deemed to be of hazardous potential. The term "hazardous" is not further defined. By contrast, realistic evaluation of a tract's hazard potential to a given resource factor should be based upon consideration of the likelihood of oil reaching a given resource and the probable short and long term effects this would have upon the resource.

In addition, while the evaluation purports to be a presentation of the proximity of tracts to significant natural resources (and to cultural resources and multiple use activities), some of the natural resource factors used in the context of hazard potential are of questionable validity.

Even though all of the biological significant resource factors mentioned above were affected during the Santa Barbara spill, none sustained serious long term damage. Mortalities were high among intertidal barnacle and surfgrass populations (Foster et al., 1971) and among pelagic birds (Straughan, 1973), but there is no evidence that resources affected have not completely recovered. The Santa Barbara experience has been summarized by Straughan (1973) as follows:

> Interpretation of data was frequently difficult due to the lack of immediately prespill background data and complications caused by the unusually heavy rains and flooding. However, organisms suffering the highest mortality were pelagic birds and the barnacle *Chthamalus fissues* (sic). Mortality was at a very low level and/or patchy in other groups.

> Recolonization commenced within 8 weeks of the spill. While little data is available on the sublethal effects of the oil, the biota of the Santa Barbara Channel has been able to withstand the oil pollution experienced in 1969. Such pollution during a different period of the year or on repetitious pattern could be a different matter.

Thus, a distinction should be made between short term and long term hazard potential, and the concept of "potential hazard" should be defined in terms of what is known about effects of oil on the total marine ecosystem. Vulnerability of a given resource to spilled oil may be strongly dependent on the time of year. In addition, winds and currents which would transport oil to this resource also show seasonal patterns. It is essential that these factors be incorporated in an analysis of hazard potential, with emphasis on the nature, extent, and duration of probable effects.

One of the greatest potential hazards of an oil spill is the direct threat to marine birds that make contact with the ocean surface as part of their normal behavior. The threat to bird rookeries is less certain. Except for some marine birds that breed in marshes, rookeries are well above the highest level oil would reach in the intertidal. Among the marine birds affected by the Santa Barbara spill, loons and grebes may have sustained the greatest impact in terms of population dynamics (Connell, 1971). The oil affected birds directly--not through their breeding grounds (rookeries). Rookeries for the western grebe, the most abundant grebe in the OCS area, do not exist off Southern California; they occur inland around freshwater bodies, especially in the midwest (Abbott, 1975). Clearly, distance to the nearest point onshore from the center of a tract is not a valid measure of potential impacts on marine birds or on marine bird rookeries.

Similarly, the distance to the nearest sandy beach intertidal area is not a valid measure of the potential ecological impact upon this resource. A survey of sandy beaches by Trask (1971) over a 12-month period following the Santa Barbara oil spill failed to pinpoint any damage due to oil pollution (Straughan, 1970).

In addition to this problem, the analysis makes no distinction with respect to potential severity of impact. In a comparison between a kelp bed and a refuge/wildlife management area, clearly the latter is of more concern. In fact, kelp beds could be considered a protective factor, since they may impede oil from reaching intertidal areas (see Foster et al., 1971). Immediate effects of the Santa Barbara oil spill on kelp bed communities were analyzed by Foster, et al., (1971). Their findings are as follows:

> Boat surveys conducted offshore showed no abnormal decay or damage after the initial oil dose. Animals in a few collections from the kelp canopy in both heavily and lightly polluted beds were similar in kind and abundance, and were representative of the normal kelp canopy community as described by Limbaugh (1955).
>
> Our diving surveys off Station D showed no oil beneath the kelp canopy. In addition, over 200 dives by various persons were made in the Santa Barbara area kelp beds during and after the initial pollution under the supervision of D. Duckett, the UCSB campus diving officer. None of the divers reported oil on the bottom or any obvious changes in the subtidal environment (D. Duckett, personal communication). Divers have noted oil on the bottom in Santa Barbara harbour and immediately outside the harbour, but this is probably a result of the use of oil sinking agents in these areas.

5.3.2 General Effects of Hydrocarbons on Biota

The BLM DES makes repeated references to the idea that petroleum hydrocarbons may be taken up by organisms at lower trophic levels and concentrated in fauna at higher trophic levels (food chain magnification). For example, (Vol 2, p 69):

> The zooplankton can be eaten by small fishes and filter-feeding organisms while carrying the oil in their guts. The fish and filter-feeders may in turn be eaten by larger predatory animals, establishing the potential for a classic example of biological magnification of a potentially harmful or toxic compound. A similar effect could be expected if other toxic materials such as diesel fuel, solvents, or heat exchanger fluids were spilled during handling or as a result of platform damage.

Currently no references exist in the literature that establish the validity of the food chain magnification hypothesis, as it applies to petroleum hydrocarbons. All evidence suggests that organisms subjected to temporary exposure to petroleum pollution depurate (rid their tissues of hydrocarbons) rather than retain accumulated hydrocarbons, reducing the likelihood that magnification would occur. Burns and Teal (1971) found no convincing evidence for magnification among organisms restricted to a contaminated marsh.

There is little question that most marine organisms exposed to hydrocarbons incorporate them into their tissues. While some organisms (e.g., copepods) can ingest large quantities of petroleum and incorporate it into fecal matter without substantial degradation, some fish and crustaceans can metabolize petroleum hydrocarbons within 2 weeks; metabolism in plankton and benthos is, however, slow and poorly understood (National Academy of Sciences, 1975). Recent studies have shown that the class of hydrocarbons accumulated to the greatest degree and retained the longest are the naphthalenes (naphthalene and alkyl-naphthalenes) regardless of the animal or test oil utilized (Anderson, 1975). However, confusion apparently still exists regarding the persistence of these hydrocarbons in affected organisms.

One school of thought subscribes to the hypothesis that organisms retain incorporated hydrocarbons indefinitely when the source of pollution is removed, and undergo little, if any, depuration. The second school of thought, supported by the majority of available field and experimental evidence, contends that organisms depurate when they are exposed to clean water.

Proponents of the concept that organisms are capable of indefinite retention of incorporated hydrocarbons usually cite the work of Blumer et al. (1970a), who examined effects of a No. 2 fuel oil spill near West Falmouth, Massachusetts and reported the following:

> Oysters that were removed from the polluted area and that were maintained in clean water for as long as 6 months retained the oil without change in composition or quantity. Thus, once contaminated, shellfish cannot cleanse themselves of oil pollution.

Additional support for this hypothesis, perhaps in the form of circumstantial evidence, derives from work by Blumer (1967) and Blumer, et al., (1970b) that established that certain natural hydrocarbons persist in the lipids of marine animals.

In support of the concept that organisms depurate, Mertens (1975) reviewed the literature and was unable to find a single reference that would confirm Blumer's findings that once contaminated, marine organisms retain all of the oil they have accumulated. In addition, recent API-sponsored laboratory analyses by J. W. Anderson and associates at Texas A&M University have determined that edible marine animals (oysters, *Crassostrea virginica*; clams, *Rangia cuneata*; and shrimp, *Palaemonetes* sp.) release accumulated naphthalenes to background levels (Anderson, 1975).

The rate of depuration depends upon species and the duration and concentration of oil exposure, but is substantially complete for clams, shrimp, and fish in from 6 to 14 days (Anderson and Neff, 1974). The oysters tested released normal paraffins rapidly (90 percent in 24 hours) but depuration of the aromatics, which are more toxic, was slower, requiring 24 to 52 days for naphthalenes to reach background levels (Anderson, 1975). Anderson (1975) hypothesized that slower release rates exhibited by bivalve molluscs (clams and oysters) may be due to a lack of enzymatic detoxification pathways present in more complex organisms.

Stegeman and Teal (cited in Anderson, 1975) found that laboratory oysters lost approximately 80 to 90 percent of hydrocarbons in 1 month. Continued low-level accumulation in partly contaminated depuration waters could account for the lack of total release of these compounds in the Stegeman and Teal experiments (Anderson, 1975). Experiments on Pacific oysters by Battelle Northwest Laboratories (Vaughan, 1973) showed that these animals released hydrocarbons accumulated from oil-water mixtures (n-alkanes and 1-methyl and 2-methyl naphthalenes) to below detectable levels after 28 days in clean water. Lee et al., (1972) showed that the mussel, *Mytilus edulis* (like the oyster, a filter-feeding bivalve mollusc) could not degrade aromatics, but released approximately 90 percent of total accumulated hydrocarbons after 14 days in clean water. Mussels from the field accumulated hydrocarbons from a remote spill of fuel oil, but lost these shortly thereafter (Lee and Benson, 1973).

Subsequent to Mertens' (1975) testimony, results of work on mussels (*Mytilus edulis* and *M. californianus*) has been reported by DiSalvo et al., (1975) which has some bearing on the problem. These investigators found that mussels transferred from clean areas to polluted waters took up hydrocarbons and released them to approximately baseline values when returned to clean waters. However, mussels taken from chronically polluted areas underwent limited depuration when placed in clean waters for as long as 10 weeks. Herein may lie a key to the controversy: perhaps organisms that have adapted to conditions of hydrocarbon pollution undergo slow or limited depuration in clean water. Interestingly, Blumer's (1970a) oysters had been subject to polluted conditions for 57 days before being placed in clean water.

In light of the foregoing, it seems reasonable to conclude that marine organisms would be expected to accumulate toxic components of crude oil in quantities related to exposure concentrations during periods of exposure. However, when cleaner water conditions prevail, affected organisms will release accumulated hydrocarbons relatively rapidly. When the pollution source is completely removed, they will depurate to background levels. Under certain natural conditions, exposure may be prolonged, e.g., in the case of the West Falmouth spill (Blumer et al., 1970a) where hydrographic conditions in a shallow enclosed bay apparently promoted incorporation and retention of oil in sediments over a long period.

Coastal areas of southern California, however, are characterized by dynamic oceanographic conditions that would act to prevent persistence of oil in most habitats. This is supported by analyses of nearshore sediments after the Santa Barbara spill (Kolpack, 1971). Thus, exposure time of affected organisms would be limited. These affected organisms probably would release accumulated hydrocarbons rapidly when clean water conditions prevail, rendering the animals fit for human consumption after a relatively short period of time (Anderson and Neff, 1974).

Sublethal effects of hydrocarbon pollution (e.g., interference with chemically mediated behavior such as food location and reproduction) have been demonstrated in the laboratory, and lowered resistance to disease or predation is plausible. On the basis of laboratory studies of sublethal effects, Takahashi and Kittredge (1973) conclude that "since many species rely on chemoreception for location of food and sexual partners, disruption of chemoreception in the marine environment by oil spills can have profound effects on survival and reproduction." However, there is evidence that many of the sublethal behavioral effects induced by hydrocarbon exposure may be ephemeral and/or benign in effect: unfortunately, the BLM DES does not review this work.

Studies by J.W. Anderson and associates at Texas A&M University (Anderson, 1975) indicate that organisms return to normal behavioral and physiological responses when they release accumulated hydrocarbons (which occurs upon exposure to clean water). Demonstration of some sublethal effects reported in the literature requires continuous exposure under laboratory conditions to hydrocarbons for long periods of time. Such conditions of long term exposure would be the exception rather than the rule in the open and dynamic OCS area--especially in the pelagic realm.

5.3.3 Effects on Specific Components of Marine Ecosystems

The following quotation from Straughan (1970), based upon the Santa Barbara spill experience, is relevant to the BLM discussion of effects of oil spills on plankton:

> Plankton might be expected to be affected by crude oil at sea whilst it is still in its toxic condition. That plankton did not appear to be affected by the Santa Barbara spill is probably accounted for by the fact that oil, influenced by wind as well as currents, moved at a different rate than plankton. The latter would be unlikely, therefore, to be exposed to oil for long periods.

The BLM DES (Vol 2, p 88) states:

> A major oil spill will ultimately occur and many minor spills will occur. The most significant effects of a massive spill would be some direct kill of the nekton in the epipelagic zone (0-125m) especially in the upper layers.

This statement does not quantify either the probability of a major oil spill or the magnitude of probable nekton mortality. The term "some" could imply as few as 3 individuals, or most of the nekton in the OCS area. No effects on nekton, except for temporary disappearance of mysid shrimp from kelp canopies, were observed during the Santa Barbara spill (Ebeling et al., 1971).

The BLM DES (Vol 2, p 88) goes on to state that:

> The nekton should be able to recover from this effect fairly rapidly due to the large reproductive capacity of most of the species. Sublethal effects are unknown, but could be the most severe.

In Table III-14 (Vol 2) of the BLM DES it is stated that a major spill would have the impact of effecting direct kill of nekton and fish larvae for a duration of 60 days. There is no basis for this assertion.

The BLM DES discussion of oil spill effects on nekton refers to the pelagic red crab as an example of a vulnerable organism. For example (Vol 2, p 88):

> Nektonic invertebrates such as the extremely abundant pelagic red crab ...could be damaged by oil clogging their filter feeding mechanisms. The red crabs feed on phytoplankton and are in turn fed upon by sea birds, whales, oceanic game fish, kelp-bed game fish, yellowfin tuna, albacore and skipjack (Horn, 1974). The maximum concentrations of these crabs are in the coastal upwelling areas and in the California Current.

and (p 83);

> A massive kill of plankton from a large spill could remove the food source of epipelagic fish and nektonic invertebrates (especially the pelagic red crab) resulting in a decrease in the year class strength of some species.

The red crab referred to, Pleuroncodes planipes, only occasionally occurs as far north as the OCS lease area; their presence is an unusual feature in these waters.

According to Boyd (1967):

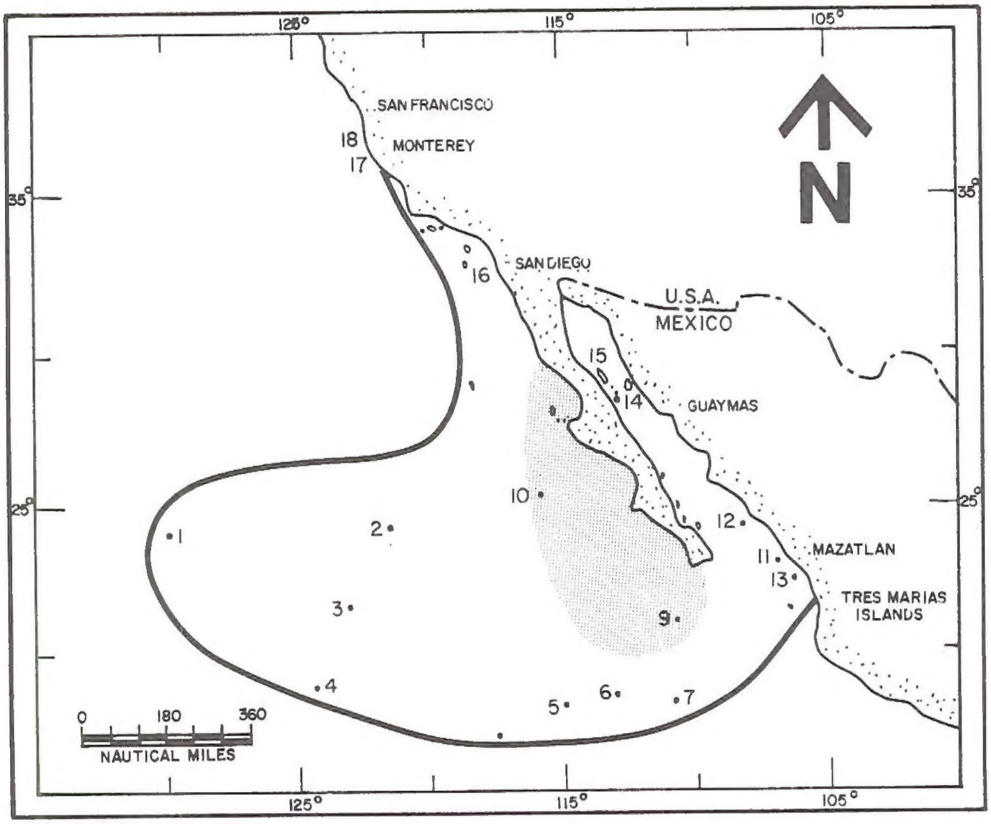
> The center of the pelagic distribution (region of greatest abundance of crabs), as delineated by data from the numerous plankton tows of the California Cooperative Oceanic Fisheries Investigations and miscellaneous cruises from Scripps Institution of Oceanography, is on the continental shelf of the western shore of southern Baja California. Presumably the crabs are distributed from this population center by the influences of the oceanic current systems.

Figure 5.3-1 shows this distribution.

The BLM DES states the following with respect to effects on benthic organisms (Vol 2, p 103):

> ...a significant number of endemic molluscs, some with a distribution restricted to 1° latitude, occur within the California Bight. This endemism also occurs in other taxonomic groups ... The implication of this is obvious; severe or chronic alteration of comparable areas of the environment could eliminate endemic species forever. It is doubtful that a single large spill could wipe out many if any subtidal benthic species by itself. The effect of widespread chronic oil pollution or a large oil spill in combination with other types of environmental alterations is not known, but could conceivably contribute to the extinction of some of these endemics.

The largest concentration of 1° latitude endemic molluscs occurs in the vicinity of Point Conception, California (see Valentine, 1966). Although many species occur all along the California coast, a major faunal transition occurs in the Point Conception region, with limited geographical overlap among species characteristic of waters to the north



OBSERVATION:

1 1859 TYPE LOCATION
2 1960 TETHYS EXPEDITION
3 1960 TETHYS EXPEDITION
4 1960 TETHYS EXPEDITION
5 1957 TUNA SPAWNING SURVEY CRUISE
6 1957 TUNA SPAWNING SURVEY CRUISE
7 1957 TUNA SPAWNING SURVEY CRUISE
8 1957 ISLAND CURRENT SURVEY CRUISE
9 1957 ISLAND CURRENT SURVEY CRUISE
10 1957 ISLAND CURRENT SURVEY CRUISE
11 1960 TUNA OCEANOGRAPHY 60-1
12 1960 TUNA OCEANOGRAPHY 60-1
13 1961 CALCOFI 6108
14 1961 BEACH STRANDING
15 1961 BEACH STRANDING
16 1961 BEACH STRANDING
17 1961 BEACH STRANDING
18 1859 BEACH STRANDING

OUTLYING OCCURRENCES AND LIMITS OF DISTRIBUTION OF THE RED CRAB, PLEURONCODES PLANIPES

(SHADED AREA INDICATES REGION OF GREATEST ABUNDANCE)

DAMES & MOORE

REFERENCE: FROM BOYD, 1967

FIGURE 5.3-1

and those characteristic of waters to the south. Existence of oil and gas seeps near and on either side of Point Conception (Wilkinson, 1972) and the presence of fresh petroleum deposits near Canada del Cojo on the beach and in subtidal exposed shale bedrock (Dames & Moore, 1975), suggests that organisms in the area may be subject to chronic, long term exposure to hydrocarbons.

The BLM DES continues (Vol 2, p 103):

> The relatively pristene [sic] and unknown benthic community of Tanner and Cortes Banks undoubtedly contains several endemics (either the 1° latitude types or those endemic to the banks) and/or species which have become rare or even extinct from the mainland shelf hard bottom communities. Much of the oil from an oil slick suspended over these areas during rough seas would be forced by the surf to the bottom and oil the epifaunal organisms. Sensitive members of this community will be killed; some species even eliminated from the banks. Biological recovery should be accomplished in the same amount of time as on the mainland shelf, except for any endemic which may be eliminated from the banks.

The assertion that heavy sea state conditions would cause conveyance of significant amounts of oil to the tops of Tanner and Cortes Banks, resulting in mortalities among sensitive species and elimination of some from the banks, is highly questionable. The crests of Tanner and Cortes Banks lie 54 and 28.5 feet, respectively, below mean lower low tide level (U.S. Department of Commerce, 1973). It is highly unlikely that swell waves would break over features this deep, and it is questionable whether turbulence from sea waves would be sufficiently strong to counteract the natural buoyancy of oil microdroplets to the extent that the oil would reach bottom at these depths.

With respect to effects on marine vertebrates, the BLM DES (Vol 2, p 437) states:

> Of all the potential dangers involved in this proposed lease sale, that to pinnipeds is potentially the greatest.

This apparently refers both to structure proximity effects and oil spillage effects. Structure proximity effects are discussed in Section 4.1. As far as oil spill effects are concerned, this assertion does not seem tenable in view of case histories of previous spills. A review of the literature would lead most readers to conclude that marine birds ordinarily incur the greatest apparent damage from oil spills.

Significant damage to sea lion and elephant seal populations was not observed during the Santa Barbara spill (LeBoeuf, 1971; Brownell and LeBoeuf, 1971). Sea lions gave birth to pups after oil came in contact with their rookeries in March 1969 (Brownell and LeBoeuf, 1971). LeBoeuf (1971) suggests that elephant seal pups may have been more seriously affected if the oil spill coincided with the nursing period. This suggests that potential severity of effects depends primarily upon timing in the case of these pinnipeds. Damage to bird populations would also depend upon timing (spillage during peak migration of certain species poses the greatest threat). However, the effects of oil spills are known for birds, but not for mammals. Thus, the BLM statement cited should be regarded as highly speculative.

5.4 OTHER IMPACTS

In the discussion of oil spill impact on the living component of the environment (BLM DES Vol 2, pp 44-65), mention is made of natural oil seepage in the Southern California borderland. It is further mentioned that there is some evidence that organisms in this area may have developed a tolerance for oil. This evidence, however, is qualified by the statement (p 53) that:

> ...[oil from natural seepage] tends to have a lower concentration of the lower molecular weight fractions than crude oil...

To support this statement, a gas chromatogram of natural seep oil is presented (p 54) that, admittedly, may not be representative because it was (p 53);

> ...based upon separation by column chromatopography...of a fraction containing only the less toxic saturated, non-aromatic hydrocarbons... .

Despite this significant limitation, the statement is then made (p 53), that

> ...Organisms unaffected by exposure to the tar-like natural seep oil may not necessarily be unaffected by exposure to freshly spilled crude.

The fact is that fresh natural seep oil does contain substantial amounts of low molecular weight fractions. The study cited by BLM employed an experimental procedure that tends to deplete the oil of its low molecular weight components prior to gas chromatographic analysis. When natural seep oil is analyzed without this preliminary step, it is found to contain 9 volume percent boiling below 100°C, and 23 volume percent boiling below 250°C (Sivadier, 1972). Furthermore, measurements conducted on the open sea showed that up to 20 volume percent of natural seep oil could evaporate within 1 hour of its release to the sea surface.

With regard to the more toxic aromatic hydrocarbon fractions, previous studies have shown that natural seep oil does not differ substantially from typical crude oils (Rosen et al., 1959 and Ludwig et al., 1960). In fact, the Rosen study and the Ludwig study explored the possibility of using aromatic content to identify the source of beach tars (natural seepage versus crude oil), but concluded that there was too much overlap. Their findings showed that oil from natural seepage contained from 25 percent to 55 percent aromatic hydrocarbons while typical crude oils contained from 30 percent to 50 percent. The principal difference between these two oil types was a noticably higher asphaltene content, in natural seep oil which, in turn, gives it a tar-like consistency.

Drawing upon these studies, there appears to be no basis in fact to support a general conclusion that marine organisms will suffer any greater effects from freshly spilled crude oil than they will (or already do) from natural seep oil.

6.0 HUMAN ENVIRONMENTAL CONSIDERATIONS

This section addresses three major areas of concern in the interface between human environment and the proposed Southern California OCS project:

1. Visual aesthetics.
2. The relationship between the project and the Coastal Zone Plan.
3. Project-related employment and income.

6.1 VISUAL AESTHETICS

Since it is largely a matter of subjectivity, visual aesthetics is a difficult quality to assess. The determination of whether something exhibits a pleasant aesthetic character can become quite complex, as the very concept of aesthetics may have different connotations to different people. In the case of an offshore oil platform, a petroleum engineer might view it with pleasure, but a school teacher or farmer (although recognizing a certain functional beauty) may react in a negative manner to its overall aesthetic qualities.

The evaluation of aesthetic impact is further affected by the way in which any proposed facility will interact and/or blend with the existing visual environment. For example, a large storage tank might go unnoticed in an intensively industrialized area, but would constitute an obvious visual intrusion in a residential locale.

The following excerpt from BLM DES (Vol 2, p 227) summarizes the difficulties of quantifying aesthetics.

> Appreciation of esthetic values is inextricably interwoven with many other human pursuits, some of which are measured in terms of dollars or visitor days, and numerous others which are neither measured nor susceptible to measurement. Adverse esthetic impacts frequently do not result in total loss of the resource such as people refusing to go to a beach because of a cluttered view, but rather, some unquantifiable depreciation of their total enjoyment of the experience.

In the following analysis we will not quantify but will attempt to qualify the potential visual intrusion of the exploration and production platforms that would be constructed as a result of OCS leasing. It is safe to assume that there are many people who would have a negative reaction to offshore oil platforms. Further, considering the densely populated Southern California coastal area, there is a very great exposure factor (which is essentially unmeasurable) to these offshore areas. With these facts in mind, an examination of the extent to which platforms will be visible becomes very important in the description of summary or total impact to the visual environment. Insofar as possible, it is the intent of this investigation to objectively evaluate the potential visual impact of offshore oil production facilities, rather than to describe very subjective and emotionally influenced factors.

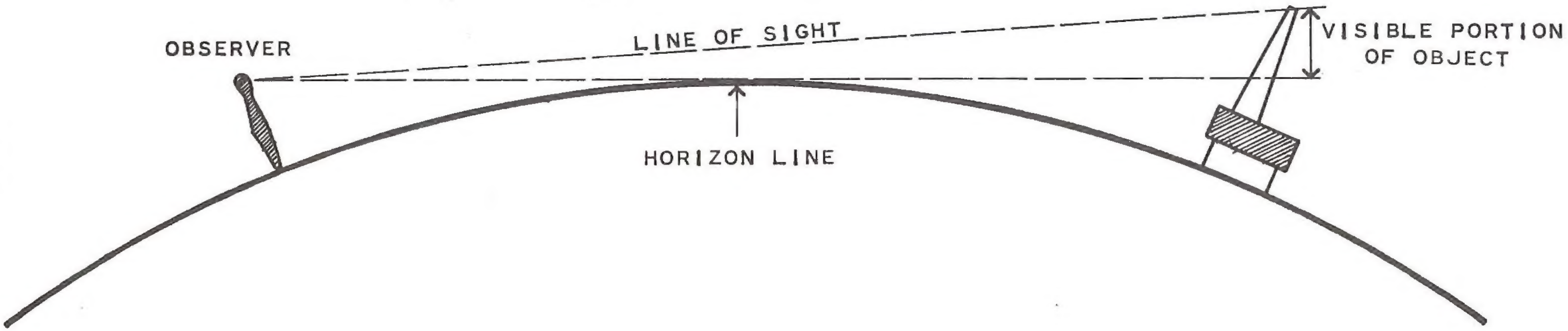
In this investigation, no attempt was made to review the potential for exposure to offshore facilities resulting from man's use of the coastal zone. For example, many more people would view facilities off the coast of Santa Monica or San Pedro than similarly placed facilities off the coast of a relatively undeveloped area. No analysis was made, since the exact locations of facilities remains undetermined and high exposure in terms of the number of people that may view a structure could not always be equated with increased visual impact. However, it is recognized that Subareas A-1 and A-2 have the greatest potential for exposure in terms of the number of people that may view any particular facility.

There are four key elements or variables in this investigation visibility formula:

1. Height of the observed object (above sea level).
2. Position of the observer in terms of height above sea level.
3. Distance between observer and object.
4. Intervening objects and atmospheric characteristics that might interfere with the direct line of sight between observer and object or the ability to perceive an object.

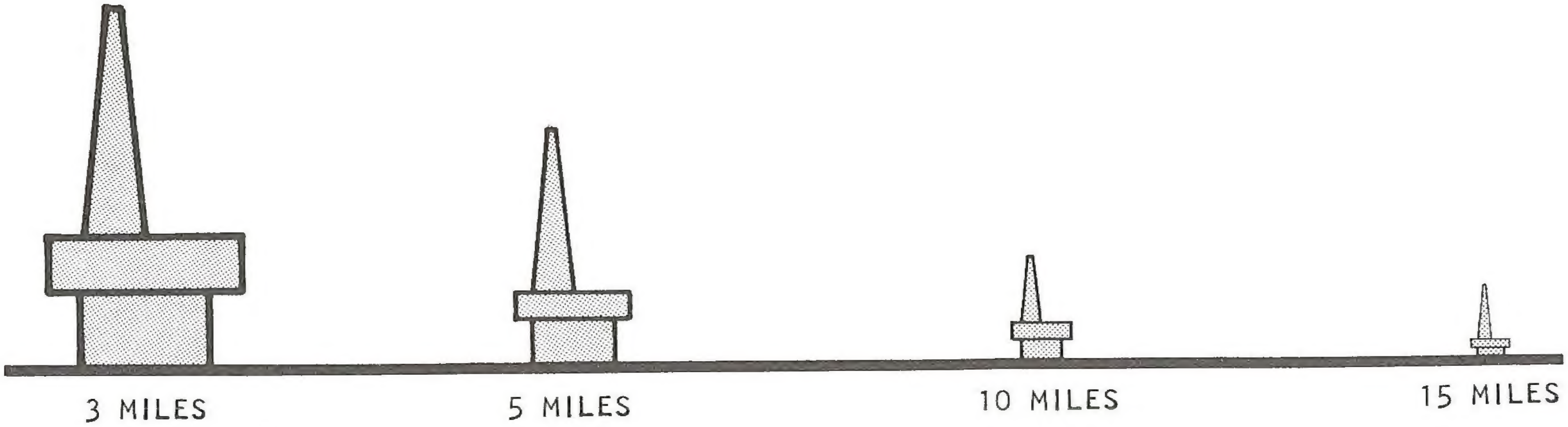
It is important to note that the curvature of the earth creates a horizon line in the eyes of the observer and any object on or in the water beyond the horizon line will be only partially visible to the observer (Figure 6.1-1). Further, it is also obvious that as the distance to the object increases, the object appears smaller to the observer (Figure 6.1-2). These two factors combine to greatly reduce the visual impact of any offshore oil platforms located beyond the horizon line.

The principal objects considered in this investigation are offshore oil drilling and production platforms. Within the defined tracts of the proposed OCS Lease Sale No. 35, it is forecasted that 60 to 62 platforms will be constructed and utilized for this program. In addition, six floating processors are contemplated for deep water areas.



HORIZON LINE EFFECT

FIGURE 6.1-1



RELATIVE PLATFORM PROMINENCE

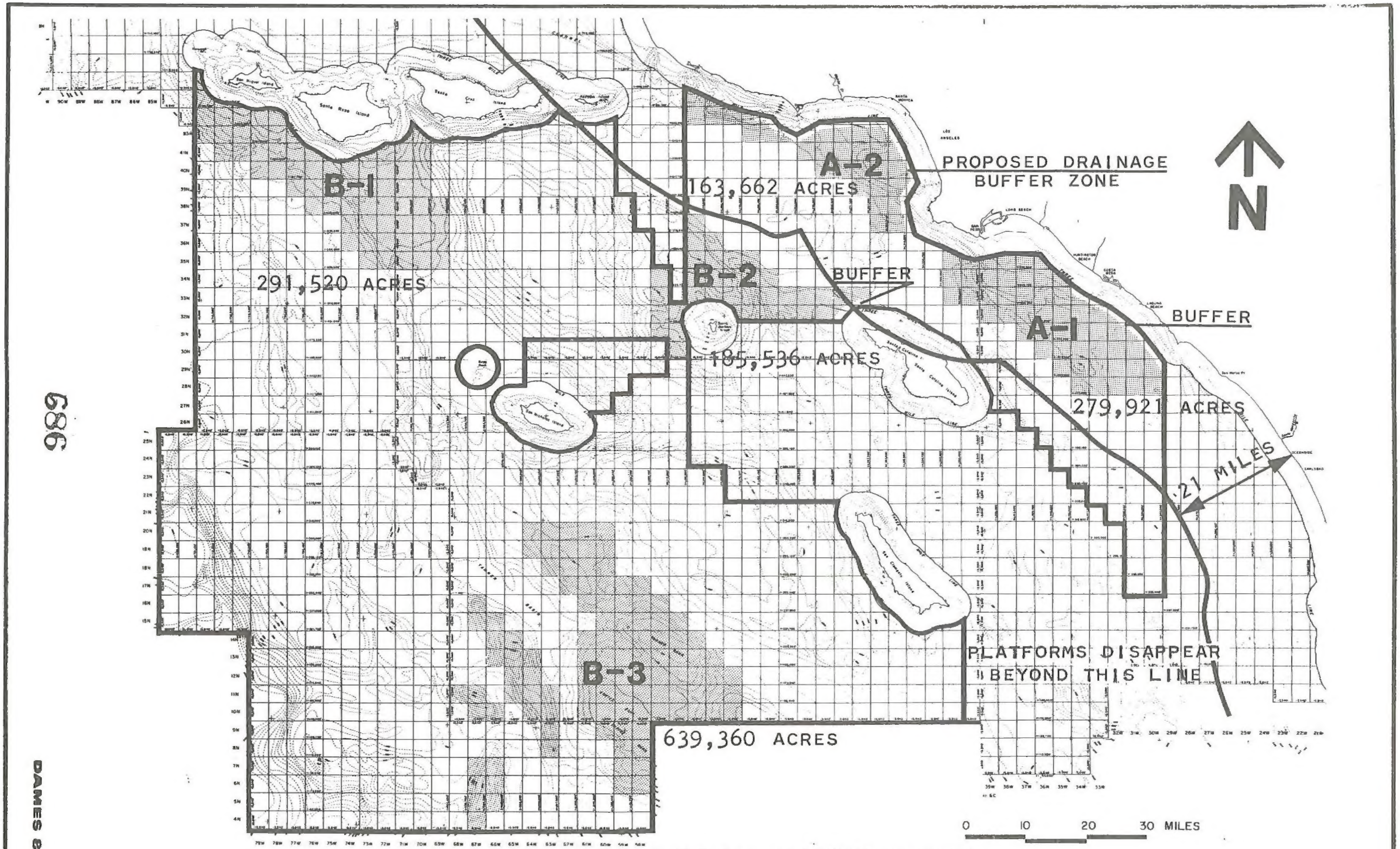
DAMES & MOORE

FIGURE 6.1-2

OCS Lease Sale No. 35 has been divided into five geographically separate subareas. The locations of these subareas are illustrated on Figure 6.1-3. Based on the results of prior studies, it is forecast that each of the subareas will ultimately contain platforms and floating processors, as follows:

Subarea		Number of Platforms	Number of Floating Processors
No.	Name		
A-1	San Pedro Shelf	8-10	1
A-2	Santa Monica Shelf and Basin	8	0
B-1	Santa Rosa Shelf	20	1
B-2	Catalina	6	1
B-3	Tanner/Cortes Banks	18	3
		60-62	6

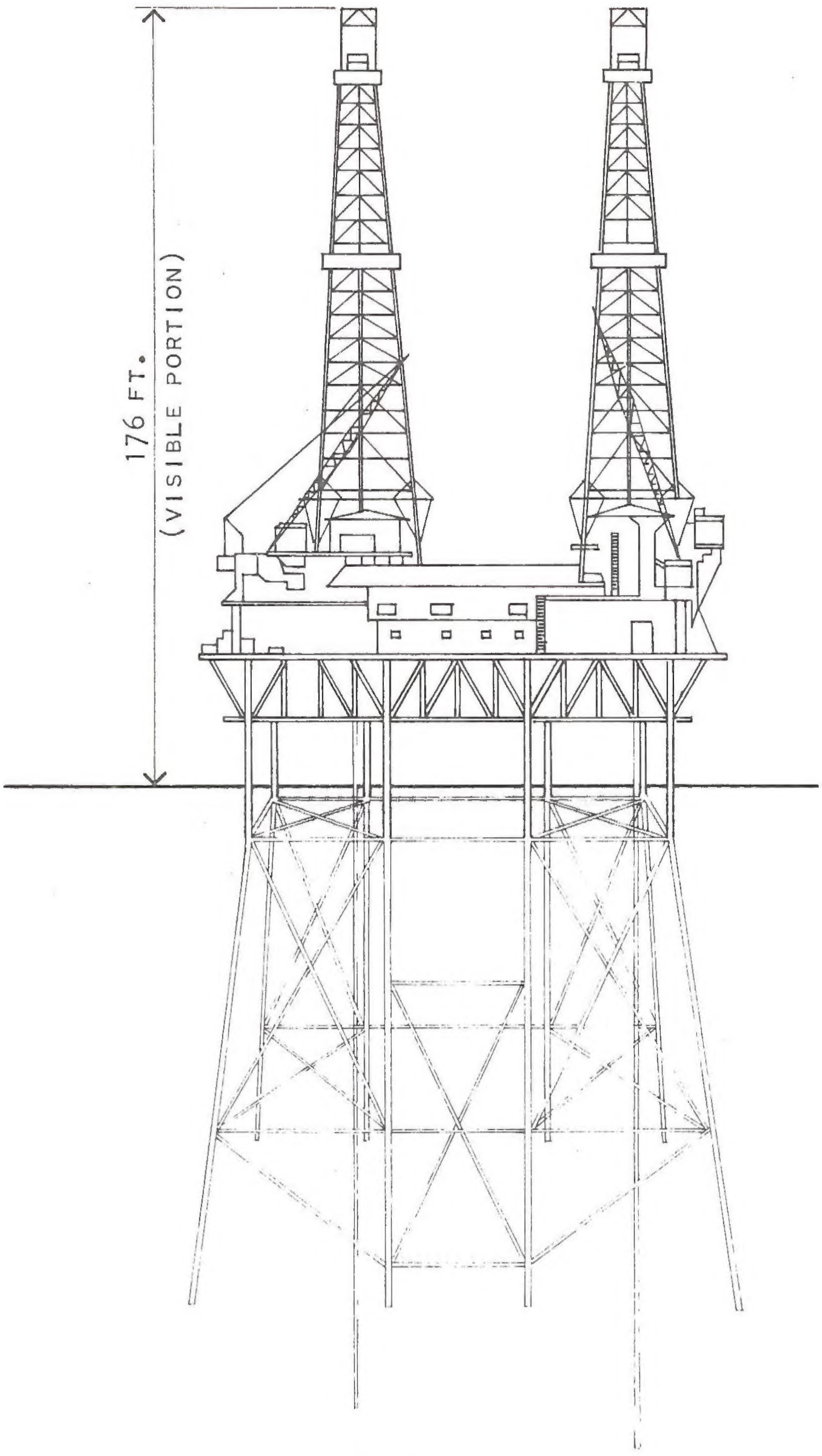
The profile of a probable platform configuration planned for this project is shown on Figure 6.1-4. During the development drilling phase the platform facilities would include the 2 derricks, making the total height above sea level approximately 176 feet. As platforms are brought into full production many of the large derricks will be removed and replaced with smaller derricks designed for remedial work. These smaller derricks will reduce the visibility of platforms to some small degree. However, some operators will leave the large derricks in place. For this reason, analysis of potential platform visibility assumes that the larger derricks are not removed.



PROPOSED OCS LEASE BOUNDARIES SHOWING MAXIMUM AREA OF VISIBILITY (FROM MAINLAND)

DAMES & MOORE

FIGURE 6.1-3



VERTICAL SCALE EXAGGERATED

PROBABLE PLATFORM CONFIGURATION

687

DAMES & MOORE

FIGURE 61-4

6.1.1 Platform Vanishing Point (Horizon Line Effect)

An analysis was made of the horizon line effect considering the following factors:

1. Expected location of platforms within each defined subarea.
2. Platform structure heights during development drilling and production operations.
3. Selected eye level heights of an observer located at various points along the coast.

As illustrated on Figure 6.1-3, the proximity of Subareas A-1 and A-2 to the mainland coast make these the primary visual impact areas for consideration when evaluating the effect on the onshore observer. These 2 areas are expected to contain no more than 18 platforms.

In selecting the appropriate observer points, the following elevations and locations were chosen:

1. On the beach at an eye level approximately 15 feet above sea level.
2. On a 100-foot bluff overlooking the lease area from such typical locations as:
    - (a) Santa Monica-Palisades Park
    - (b) Corona Del Mar
    - (c) Laguna Beach-Emerald Bay
3. On a 200-foot bluff overlooking the lease area from such typical locations as:
    - (a) Palos Verdes
    - (b) Malibu-Point Dume
    - (c) Laguna Beach foothills

Moving a platform from a point at the horizon line (100 percent visible) to the vanishing point (0 percent visible) reduces the visibility percentage inversely proportional to the distance covered between the 2 points. All locations between the observer and the horizon line would be 100 percent visible.

Within Subareas A-1 and A-2, and based on the expected location of reserves and upon ocean floor topography, platforms are forecasted to be located between 4.0 and 11.6 miles from the mainland. The average distance is 7.2 miles, resulting in the visibility presented in Table 6.1-I.

TABLE 6.1-I

SUBAREAS A-1 AND A-2

Observer Position (feet above sea level)	Horizon Line (miles from observer)	Average Platform Percent Visible at 7.2 Miles From Shore	
		Development Drilling (height: 176 feet)	Production (height: 80 feet)
15	4.74	85% visible (upper 149 feet)	78% visible (upper 62 feet)
100	12.25	100% visible	100% visible
200	17.32	100% visible	100% visible

Therefore, all 16 to 18 platforms within Subareas A-1 and A-2 will be visible from the water's edge on the mainland (see Appendix A). As illustrated on Figure 6.1-3, a portion of Subarea B-2 will also be within view of an observer at the 100- and 200-foot elevations. Based on an analysis of this subarea, the visibility expected is shown in Table 6.1-II.

TABLE 6.1-II

SUBAREA B-2

Observer Position (feet above sea level)	Horizon Line (miles from observer)	Development Drilling (176 feet)		Production (80 feet)	
		Platforms in View	Average Visibility	Platforms in View	Average Visibility
15	4.74	None	-	None	-
100	12.25	2	34% (upper 60 feet)	None	-
200	17.32	4	44% (upper 77 feet)	2	48% (upper 39 feet)

Note: Of the total six platforms forecast for Subarea B-2, two are projected at about 23 miles from shore, two at 30 miles from shore, and two at about 40 miles from shore.

In summary, visibility of platforms from the mainland oceanfront (as affected by the earth's curvature) is forecast as in Table 6.1-III.

TABLE 6.1-III

EFFECTS OF EARTH'S CURVATURE

Observer Position (feet above sea level)	Development Drilling (176 feet)	Production (80 feet)
15	18 platforms average 85% visible	18 platforms average 78% visible
100	18 platforms 100% visible plus 2 platforms average 34% visible	18 platforms 100% visible
200	18 platforms 100% visible plus 4 platforms average 44% visible	18 platforms 100% visible plus 2 platforms average 48% visible

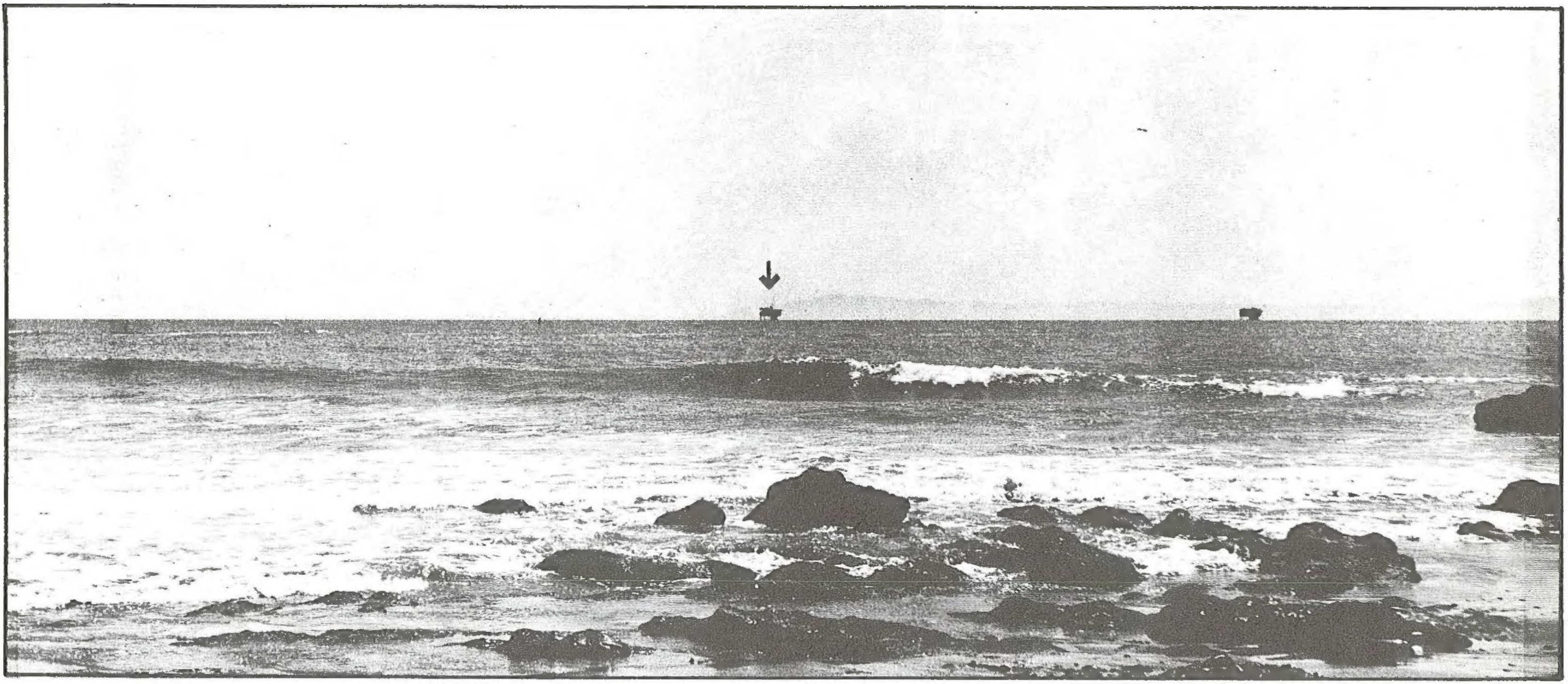
6.1.2 Prominence

As distance increases, obviously there is decreasing relative prominence of a structure (Figure 6.1-2). In other similar analysis, this effect has been described mathematically as follows:

$$\frac{1}{\sqrt{D}}$$ where D = distance from object to observer

Although this approach is considered valid (see Appendix A), it is also somewhat abstract. In order to overcome this problem, photographs were taken of existing similar offshore structures at various distances. These photos, Figures 6.1-5 through 6.1-7, graphically show the effect distance has on the relative visibility of an offshore oil platform. The photographs were taken on a very clear day (visibility in excess of 20 miles) to ensure that only the diminishing effects of distance rather than atmospheric haze were measured. It is believed that the visibility of these platforms in the Santa Barbara Channel would be very similar to OCS lease exploration and production platforms. Further, these photographs were prepared to approximate as closely as possible the natural view obtained with the unaided eye. (In order to achieve the most natural effect they should be viewed at a distance of 12 to 15 inches from the eye.)

For comparative purposes the forecast number of platforms in Subareas A-1, A-2, and B-2 are for designated distances from shore as follows:



3 MILES FROM PLATFORM

FIGURE 6.1-5

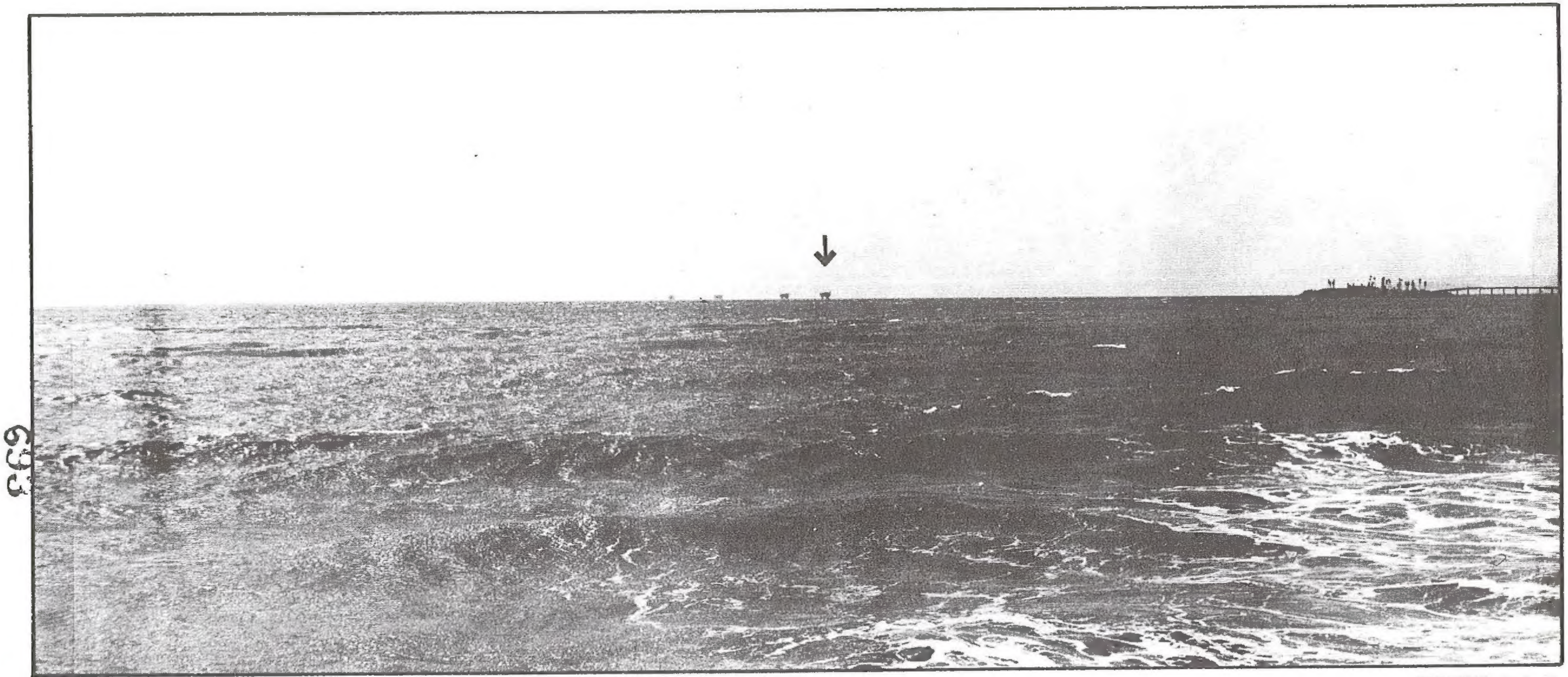
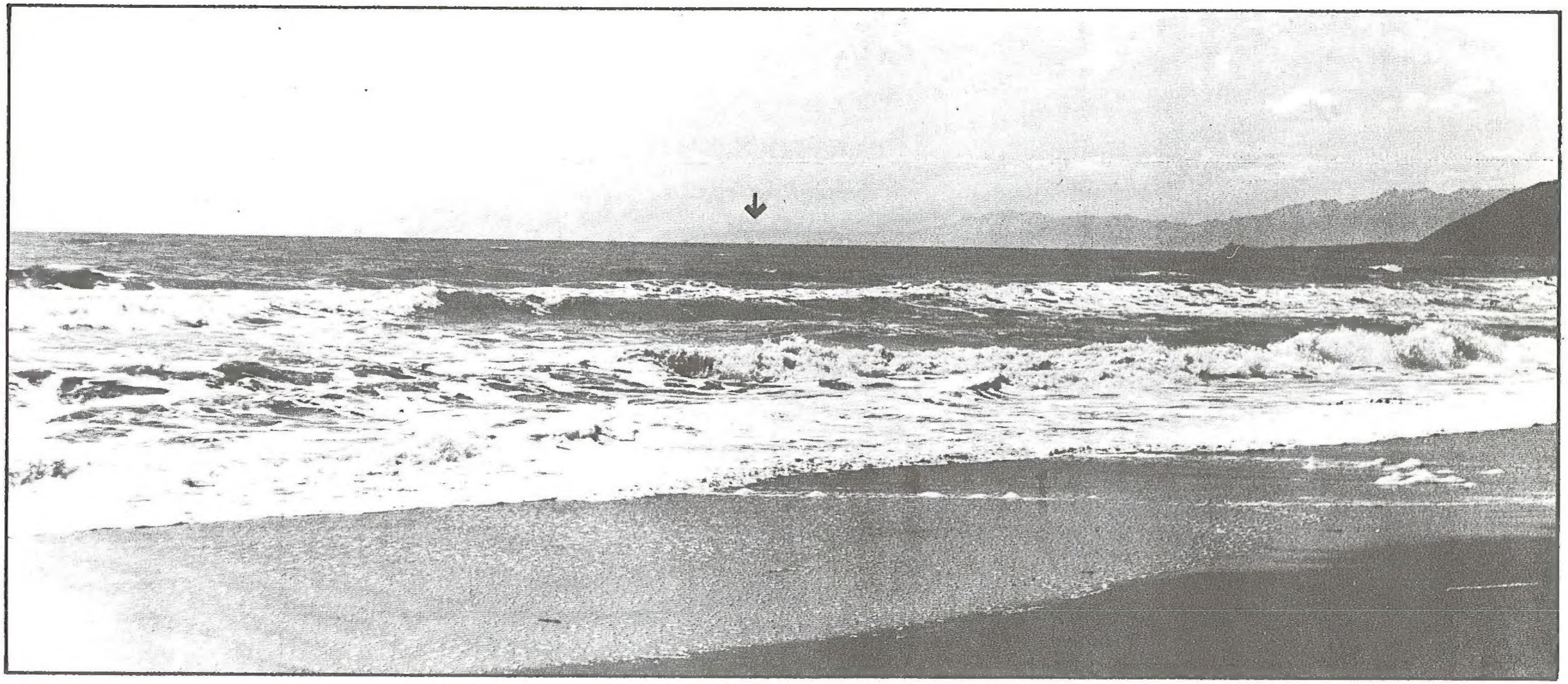


FIGURE 6.1-6

5 MILES FROM PLATFORM



10 MILES FROM PLATFORM

FIGURE 6.1–7

FIGURE 6.1-5, 6.1-6, 6.1-7

DAMES & MOORE

	Distance from Shore (miles)			
	3-5	5-10	10-15	15+
Forecast Number of Platforms	4	11	3	6

Assumes 18 platforms total for Areas A-1 and A-2.

6.1.3 Atmospheric Effects

Haze, fog, and low clouds will frequently obscure visibility in the offshore areas. Like the prominence effect, this effect is also obviously proportional to distance. The tables provided in Appendix B give average visibility on a month-by-month basis for the proposed OCS lease areas.

In general, a platform within 5 miles of the coast would be visible almost all of the time, while one from 5 to 10 miles distant would be visible from 90 to 95 percent of the time and those at distances greater than 10 to 12 miles would be visible at most about 50 percent of the time.

6.1.4 Summary

The cumulative effects of the earth's curvature, relative platform prominence, and atmospheric phenomena on the visibility of a proposed offshore structure are presented in the tables in Appendix A. These three characteristics of visibility all act to diminish the possible visual impact of the platforms (which are considered the major source of visual impact). These tables were prepared to allow the comparative analysis from one specific tract to another of the relative visual impact resulting from a proposed platform.

It is clear that placement of platforms in areas where none now exist and that currently have a high visual exposure factor would elicit a strong negative response from many people. This fact, however, must be tempered with the knowledge that most of the time only a small percentage of the estimated 60 to 62 platforms would be visible from areas of high potential exposure (all mainland areas).

It is judged that the visual impact will indeed be significant, but this interruption of the existing seascape would not be critical to most people. In addition to the evidence presented in previous paragraphs relating to the physical potential for visual impact, other supportive evidence includes the lack of a difference in coastal property values between those areas where platforms are now part of the existing environment and those where no platforms currently exist. Similar evidence relative to recreational use (visitation numbers) can also be identified.

6.2 OCS PROJECT AND COASTAL ZONE PLAN

The development of the proposed project in parallel with consideration of the proposed Coastal Plan legislation need not result in conflict between the Coastal Plan and OCS exploration and development.

The early stages of the OCS project will not involve activities requiring land use changes in the Coastal Zone. Planning, exploration, onshore platform prefabrication, and preliminary development drilling will require approximately 2 years. Only after this period of offshore work will activities reach a point where any significant amount of construction of pipelines and land based facilities will be required in areas that are under the jurisdiction of State and local public agencies.

Before the end of the first 2 years of exploration, it is likely that the Coastal Plan will be enacted into law and a permanent regulatory agency established that will have approval authority over the location of pipelines or other facilities in the coastal zone. If, however, the plan has not been enacted into law during this exploratory period, any portion of the project that is proposed within the 3-mile limit offshore will be under the jurisdiction of the California State Lands Commission, and any land based facilities will be under the jurisdiction of the appropriate local public agency. Construction of such facilities will require an Environmental Impact Report (EIR) conforming to the requirements of the California Environmental Quality Act and the lead agency (State Lands Commission and/or local public agency).

Table 6.2-I presents a sequence of events resulting from the earliest possible request for approval of a pipeline that would require an EIR both for the State and local public agency. It assumes that 5 months after the granting of a lease, a lessee will have plans sufficiently formulated to permit the instigation of the EIR process for a pipeline to bring oil ashore. A reasonable estimate of the time required for the EIR process for such a pipeline project is 15 months. The EIR would be written to conform to the California guidelines for the offshore portion and to those of the appropriate local public agencies for the land based facilities, and approval would be required from both agencies. The 15-month period includes time for draft EIR preparation, review, public hearings, the legal period for comments, response to comments, preparation of the final EIR, and also a time allowance for appeals. As a result of this time-consuming process, no pipeline could commence until 20 months after the granting of the lease. In all probability,

TABLE 6.2-I

COMPARATIVE SCHEDULE

WOGA - CALIFORNIA COASTAL PLAN

Date	● Early OCS Development Scenario	o California Coastal Plan Schedule
Dec 1975	● Lease sale	
Jan 1976		o California Coastal Plan goes to Legislature (Coastal Commission continues to review and approve/disapprove proposed projects in coastal zone)
Feb		
Mar		
Apr		
May	● Start EIR for first pipeline	
June		
Jul		
Aug		
Sept	● BLM approves plan for offshore facilities	
Oct		o Coastal Plan passes Legislature
Nov	● Commercial discovery confirmed (proceed with platform design) and fabrication)	o Coastal Plan signed by Governor
Dec		o Coastal Plan signed by Secretary of Commerce. California eligible for Coastal Zone administrative grants under Federal Coastal Zone Management Act
Jan 1977		
Feb		
Mar		
Apr		
May		
June		
Jul		
Aug	● EIR approved (15 month estimate for EIR process)	
Sep		
Oct		
Nov	● Complete first platform installation. Start development drilling	o If plan has not yet passed, it will likely go to initiative process by Dec 1977 or earlier
Dec		
Jan 1978		NOTE: AB 180, now before the Assembly, would prohibit construction of any oil/gas pipeline across permit area until (1) implementation of CCZ Plan or (2) Dec 31, 1977--whichever occurs first. The bill was authorized by 24 members and passed the Energy and Planning Materials Committee Aug 2, 1974.
Feb		
Mar	● Start production	

the Coastal Plan legislation will have been passed by this time, and the project will require approval by the Coastal Zone agency which will have been established.

If, however, the legislation is passed prior to the completion of the EIR process, the Preliminary Coastal Plan (CCACC, 1975) will undoubtedly be used as a guideline by the lead agencies in evaluating the project EIR. In no way is it possible that any portion of the project affecting the coastline can be forced upon local agencies without their approval.

In addition to the available legal assurances of State and local control, with or without the existence of the passage of the Coastal Plan, the members of WOGA will pursue a program of cooperation with public agencies, providing necessary information to ensure that adequate planning may be done.

Although the drafters of the Preliminary Coastal Plan (CCZCC, 1975) prefer to see the OCS development occur within the context of an existing adopted plan, the findings of the proposed plan clearly indicate a need for the utilization of Southern California's offshore oil and gas resources. Selected findings that support OCS development include:

1. A principal goal of the Coastal Plan is to protect, enhance, and restore the coastal environment while still planning for those energy facilities for which a clear public need and a need for siting along the coast can be shown. (p 163)
2. California's petroleum demand is greater than its production capacity, a deficit which is likely to increase. (p 163) The amount of California oil being shipped to Los Angeles is expected to decline by 4 percent a year to 1985. (p 212)

3. The OCS now offers the least expensive option for rapid production of large volumes of oil in California. (p 210)

4. Effective secondary and tertiary recovery of oil from existing onshore wells will require significant capital investment, improved technology, and higher price of refined products. (p 213)

5. Oil and gas leaks in offshore drilling or production are statistically rare and steadily improving offshore drilling technology should still further reduce the incidence of occurrence. (p 214)

6. Deficiencies in Federal regulations in governing drilling and production procedures led directly to the Santa Barbara blowout in 1969. The regulations have been upgraded and are in substantial conformance with those of the State of California. (p 211)

The policies of the Preliminary Coastal Plan regarding petroleum development are all aimed toward meeting the balanced goal of utilizing the offshore oil resources while continuing to protect the coast's environmental resources. There is no policy in the plan that would bar the utilization of OCS oil. On the contrary, and importantly, the plan states (CCZCC, 1975, p 213):

> It is very difficult to make the judgment that offshore oil drilling and production platforms are intrinsically at variance with the objectives of the Coastal Act.

6.3 EMPLOYMENT AND INCOME

This section gives a brief overview of the potential employment and population effects of the proposed Southern California OCS project over its projected life of 75 years. The projection assumes a full-scale project, producing a total of 14 billion barrels of oil over the 75-year period.

6.3.1 Employment

Potential direct and secondary employment which may be generated as a result of the project is summarized in Table 6.3-I, and Figure 6.3.1. Direct employment refers to workers directly involved in construction, exploration, development, and production activities on the OCS project.

Secondary employment, which is expected to be generated by the project, includes jobs in industries which (1) provide support to the primary project, (i.e., subcontractors, suppliers of equipment, and other services); and (2) provide services to project employees (i.e., stores, restaurants, professional services, etc.); and (3) utilize products provided by the project.

Direct Employment

Exploration: Most of the employment generated by this activity will occur during the first 5 years of the project although it will continue at a reduced level during the next 20 years.

Fabrication: Platform prefabrication will take place in onshore shipyards. This projection assumes the completion of 60 platforms, 2 platforms a year over a 30-year period. If the 60 platforms were constructed on an accelerated schedule, the annual employment would increase but be confined to a shorter period. The use of less than 60 platforms would shorten the construction period but probably would not lower the annual employment.

After the beginning period, it is expected that there will be some drop in fabrication employment as a result of

TABLE 6.3-I

PRELIMINARY PROJECTION
AVERAGE ANNUAL
DIRECT AND SECONDARY EMPLOYMENT
75-YEAR PERIOD
PROPOSED SOUTHERN CALIFORNIA OCS PROJECT

Period	Exploration[1]	Fabrication[2]	Development Drilling[1,3]	Production[1]	Total Annual Project Employment	Secondary Employment[4]	Total Annual Direct and Secondary Employment
Years 1 to 5	1,500	1,100	1,800	400	4,800	5,800	10,600
Years 6 to 10	400	900	7,200	1,600	10,100	12,100	22,200
Years 11 to 15	400	900	9,000	6,000	16,300	19,600	35,900
Years 16 to 25	400	900	3,600	6,000	10,900	13,100	24,000
Years 26 to 35		900	1,300	8,000	10,200	12,200	22,400
Years 36 to 45			900	6,400	7,300	8,800	16,100
Years 46 to 55			900	4,000	4,900	5,900	10,800
Years 56 to 65			600	2,400	3,000	3,600	6,600
Years 66 to 75			600	1,600	1,600	1,900	3,500

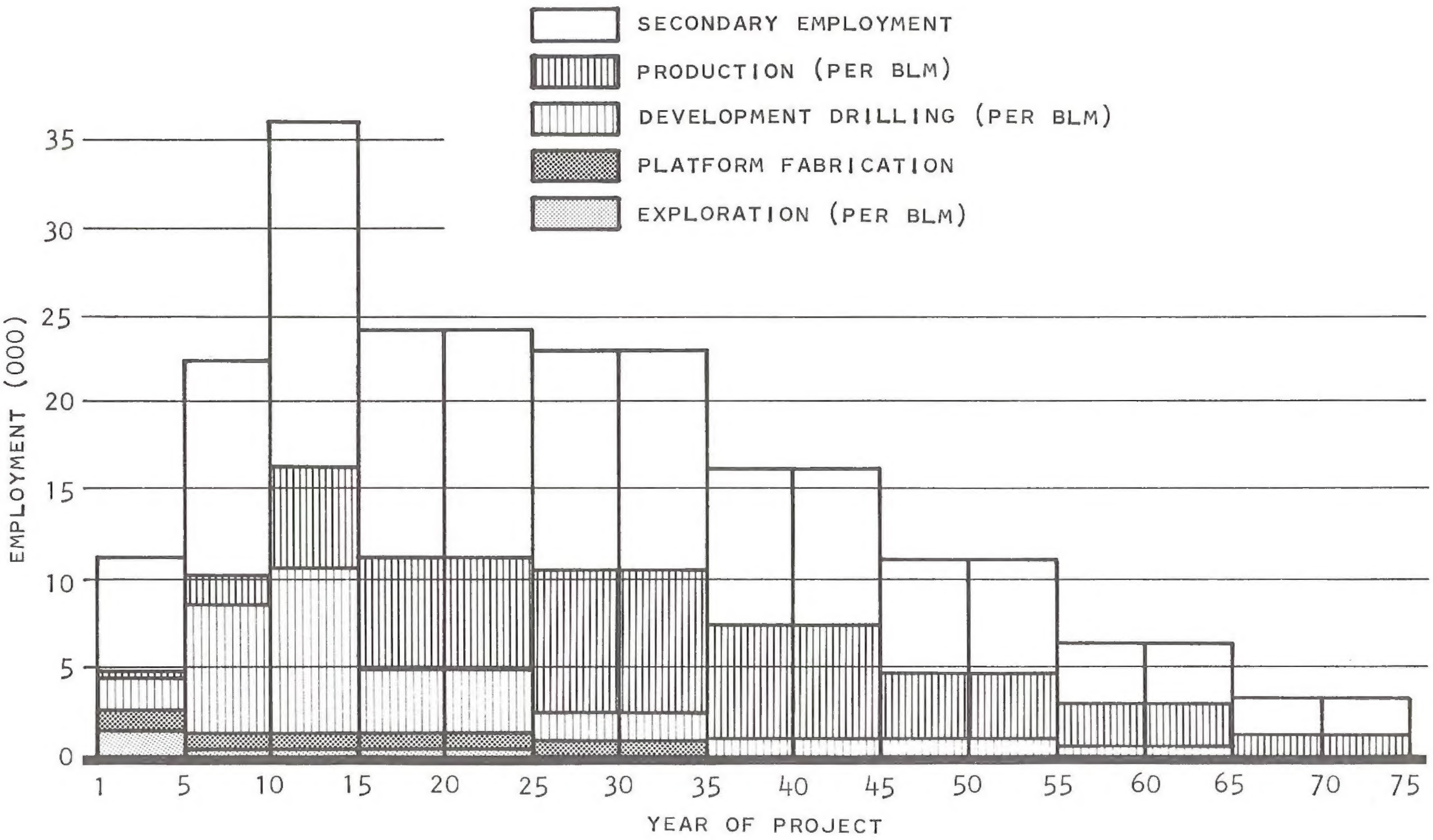
---

[1] Figures for Exploration, Development Drilling, and Production are derived from the BLM report.

[2] Shoreside platform fabrication employment is projected based on known data in connection with a comparable platform currently under construction. The number of employees drops after 5 years to reflect efficiency based upon experience.

[3] Includes offshore construction and installation.

[4] Includes employment in industries providing services to the project or to its employees and industries utilizing the product of the project. A multiplier of 1.2 has been used.



PRELIMINARY PROJECTION DIRECT & SECONDARY EMPLOYMENT OCS PROJECT

DAMES & MOORE

FIGURE 6.3-1

increased efficiency based on experience. However, it would not be a dramatic decrease, since each platform must be custom built to satisfy the varying conditions and requirements of each specific location.

Employment related to the fabrication of platforms will not be confined to Southern California. Some portion of this work may be done by shipyards in the San Francisco area and on the Gulf Coast.

Development Drilling: This phase of the project includes offshore installation of platforms and pipelines and construction of pipeline terminals, harbor terminal, fleet, and floating structures, in addition to drilling itself. Drilling activity will decline after the 35th year, and most of the activity for the next 30 years will consist of recompletions on existing platforms.

Production: Employment for the production phase includes clerical, technical, and administrative personnel working onshore, as well as the offshore field personnel. This phase accounts for the bulk of the project employment over the 75-year period.

The extent to which project employment will affect the local labor force depends on the match between skills required by the project and those available in the local labor force. In addition, workers with highly specialized skills now working on offshore projects on the Gulf Coast and elsewhere may choose to migrate to California, reducing the job potential for local workers.

The geographic area from which the project labor pool may be drawn will be larger than that of many large onshore construction projects. The offshore working schedule will consist of shifts of 7 days on and 7 days off, freeing the workers from daily commuting and allowing them to live at considerable distances from the work sites. Nevertheless, the project will provide a substantial employment opportunity for the local labor force (Los Angeles/Orange/Ventura Counties).

Secondary Employment

The ratio between direct project employment and secondary (indirect or induced) employment varies from region to region. It tends to be lower in a highly urbanized area than in a rural area where the existing infrastructure and institutions are largely undeveloped. In a region like Los Angeles/Orange/ Ventura Counties, the ratio would be likely to range from about 1:1.0 to 1:1.5. For this projection, a ratio of 1:1.2 has been used (or a multiplier of 2.2). Employment in different industrial sectors and different geographic areas within the region may be expected to exhibit variations around this average.

Since no unusual or highly specialized skills are required for most of this secondary labor pool (with the possible exception of certain subcontract work), it is likely that a higher proportion of the secondary employment generated by the project would be provided by existing local force, including persons now unemployed.

Employment Summary

The Los Angeles/Orange/Ventura Counties area has a large labor force (45 percent of California's total) with many highly skilled workers capable of being trained for a large proportion of the OCS jobs. At present, about 9 percent, or 371,000 workers, of this labor force is unemployed (State of California, 1975). In the first 5 years of the project, it is forecast that the annual direct and secondary employment will reach 10,600, or 2.8 percent of the existing three-county unemployed workforce. It is not possible to predict exactly how project employment will affect unemployment in the region. However, it is safe to say that it will provide employment to some persons who would otherwise be unemployed. In addition, it will allow some workers an opportunity to advance into more skilled and highly paid jobs.

6.3.2 Income

As may be seen in Table 6.3-II, the proposed project has the potential for generating a total of $16.5 billion in salary income over the 75-year period.

Direct project salary income based upon an average salary of $18,000, could amount to $9.6 billion, or an average annual income of $128 million. Salary income for secondary employment, based upon the census estimate of $10,750 for large metropolitan areas (Bureau of the Census, 1975), could add another $6.9 billion, averaging $92 million annually.

Together, direct and secondary annual income could amount to an average of $220 million over the 75 years, and $504 million during the peak 5 years.

TABLE 6.3-II

PRELIMINARY PROJECTION
ANNUAL SALARY INCOME
RELATED TO DIRECT AND SECONDARY EMPLOYMENT
75-YEAR PERIOD
PROPOSED SOUTHERN CALIFORNIA OCS PROJECT

Period	Total Project Employment	Total Project Salaries[1] (dollars in millions)	Total Secondary Employment	Total Secondary Income[2] (dollars in millions)	Total Annual Income (dollars in millions)	Total Income for Period (dollars in millions)
Years 1 to 5	4,800	36.4	5,800	62.4	148.8	744.0
Years 6 to 10	10,100	181.8	12,100	130.1	311.9	1,559.5
Years 11 to 15	16,300	293.4	19,600	210.7	504.1	2,520.5
Years 16 to 35	10,900	196.2	13,100	148.8	337.0	3,370.0
Years 36 to 45	7,300	131.4	8,800	94.2	225.6	2,256.0
Years 46 to 55	4,900	88.2	5,900	63.4	151.3	1,513.0
Years 56 to 65	3,000	54.0	3,600	38.5	92.5	925.0
Years 66 to 75	1,600	28.8	1,900	20.3	49.1	491.0
75-Year Total		9,630.0		6,897.0		16,527.0
Average Annual Salary Income		128.0		92.0		220.0

---

[1] Assumes an average salary of $13,000 annually for project workers.

[2] Assuumes an average income of $10,750 for families and unrelated individuals as derived from the latest Census report on income in metropolitan areas of 1 million population (Bureau of the Census, 1975).

7.0 "NO-PROJECT" ALTERNATIVES

7.1 ENERGY ALTERNATIVES TO THE PROPOSED OCS LEASING

Virtually all projections indicate that petroleum energy can be expected to increase in price and decline in availability. For example, oil and gas, which supplied nearly 78 percent of the national energy demand in 1972, is expected to meet only 60 percent of the demand in the year 1990. Alternative energy sources, particularly coal and nuclear power, are expected to furnish an increasing share of the national energy supply.

Under such circumstances, the United States is faced with the need for a broad effort to develop energy in significant quantities. However, with the exception of increased importation of oil and gas, these alternative energy sources cannot be expected to satisfy a major portion of the U.S. energy demand on their own, and they will probably not produce significant quantities of energy within the next 15 years.

This section considers the following energy sources as alternatives to the proposed OCS leasing:

1. Increased importation of oil and gas
2. Coal gasification and oil shale development
3. Nuclear power
4. Geothermal energy
5. Solar energy

In considering these alternatives to tapping the nation's offshore petroleum resources, the key question to be resolved is the ability of the nation to push development of these alternatives in terms of capital investment, manpower, and technology.

7.1.1 Increased Importation of Foreign Oil

The alternative to domestic petroleum production, which has been and is relied on at the present time, is importation of foreign oil. The result has been a chronic deficit in United States trade balances. As a future energy alternative, the importation of expanded oil and gas supplies must be based on certain assumed expectations of the future: (1) availability of the oil supplies, and (2) ability of the United States to establish trade balances with which to purchase such supplies.

The argument for ready availability of foreign oil supplies involves expected worldwide surplus of oil production so that producing nations have an incentive to provide this oil through their expanded purchase of goods (capital, luxury goods, or services), or by lowering their relative price to induce increased sales volume.

The expectation of future giant surplus, however, would also require substantial increase in the discovery of reserves. Whether more giant fields, such as the North Sea and the Alaskan North Slope, will be found is basically unpredictable.

The ability of the United States to maintain a long-term positive balance of trade in order to be able to purchase an expanded percentage of foreign petroleum for energy supply is even less likely. The projections of energy demand require importation of foreign oil as the balancing factor to complete the U.S. supply deficits. The critical aspect of commerce between nations is that in the long run it approaches barter. At the present time, OPEC bloc nations are accumulating monetary reserves from the trading deficits of their customer nations. These reserves are, in effect, a form of credit extended by the OPEC bloc which can be redeemed by future purchases of goods or assets from the oil importing nations.

How much credit can be provided in purchase of oil and gas is strictly up to the OPEC bloc. The United States has probably done very well thus far in meeting the impact of increased prices for imported oil and gas by expanding its sales abroad. Yet the net deficit continues to grow. Some of the deficit has been reduced by redemption of United States-owned equities in investments in the OPEC bloc, and a smaller fraction of the reduction in trade deficit has been by sales of United States equities and assets abroad.

Industrial development within the oil producing nations can be viewed in the short run as an opportunity for the United States to increase sales of technology and capital goods abroad. In the long run, however, the result eventually will be more competition against United States goods. To the extent that oil producing nations have the capital to pursue such goals, whether or not the United States sells the materials and technology, there can be little criticism of the policy. It is clear that increased importation of petroleum will involve serious economic difficulties if relied upon as a substitute for energy development within the United States.

7.1.2 Coal Gasification and Oil Shale Development

Both of these potential energy sources suffer a number of drawbacks which have thus far prevented any significant commercial application in this country. If these problems could be overcome so that commercial production could begin, the serious problem of limited water supply would restrict the widespread use of these technologies as necessary replacements for a significant portion of the expected OCS production.

The operation of a projected standard size coal gasification plant (250 million cubic feet per day) will require approximately 10,000 acre-feet of water per year. The smallest projected oil shale production plant providing 50,000 bbl/day (approximately the same heat content as the output of the gasification plant; 250 billion Btu/day) may require as much as 50,000 acre-feet of water per year.

A general idea of the potential impact of the withdrawal of such volumes from local water supplies can be gained by looking at alternative water uses in the western United States semi-arid regions, where the coal and shale deposits are found. In the field of agriculture alone, one acre-foot of water will irrigate 1.8 acres of a staple grain crop such as wheat, corn, or rice. The amount of grain produced would be sufficient to provide subsistence for 6 people for 1 year.

At these rates, the standard size coal gasification or shale plants (which, it should be noted, would together produce only 5 percent of the maximum OCS rate) would consume an amount of water sufficient to irrigate enough cropland to feed 60,000 or 300,000 people, respectively.

Most of the shale oil deposits are located in the upper Colorado River Basin. Although the Colorado and its tributaries can presently supply the water demands of the area, conflicting future plans have spoken for this limited supply several times over. The Project Independence Task Force Report on Oil Shale estimates that the upper Colorado River would have enough surplus water for only two or three standard size plants (at 50,000 acre-feet per year each) if all the conflicting reasonable demands were met. This would supply only 10 to 15 percent of the maximum expected OCS production rate. The Task Force Report recommends establishing higher priority for oil shales uses or augmenting the water supply by cloud seeding. The fact that neither of these proposals is examined in detail within the Task Force Report suggests that their practicality is questionable.

7.1.3 Nuclear Energy

The expanding nuclear power industry was planning to produce half of the U.S. electrical energy by the year 1990. Capital shortages have cut the expansion rate by as much as 50 percent. Southern California lags behind even this modest rate, so it is unlikely that nuclear power can supply more than 25 percent of the area's electrical needs before 1990. Even then, it should be remembered that electrical energy cannot be substituted for petroleum fuels in transportation without serious long term changes in lifestyle, such as electric automobiles and transit systems.

7.1.4 Geothermal Energy

Geothermal energy in the form of steam, hot water, and hot rock can be used to produce electrical power and supply a heat source for hot water and space heating.

The Geysers field in northern California is presently producing approximately 500 megawatts of electric power from steam. Present plans for expansion of production are 1,000 megawatts by the year 1980. Further expansions are questionable, since steam reserves are of limited extent, and they may not be renewed with injection of produced water. In fact, it is likely that the Geysers field may begin to run out within 30 years.

The Imperial Valley resource in Southern California has a much greater potential than the Geysers field (perhaps as much as 20,000 megawatts) but most of the energy is in the form of hot brine, which must be processed through some noncorrodable heat exchanger before steam and electricity can be produced. The spent brine must also be reinjected without contaminating the fresh ground water supplies in the area. Local utilities are proceeding with the development of the technology for these processes, but large scale production wthin the next 15 years is unlikely.

Another potential technology in this field is production from dry geothermal reservoirs by injecting water which is then heated to steam by the hot rock. The National Science Foundation is presently supporting experimental studies to prove the feasibility of such schemes (with little success thus far). Practical commercial operations are certainly more than a decade away.

7.1.5 Solar Energy

The high-temperature concentrators and the direct photovoltaic converters, which are required for the production of electric energy or other high grade forms, require prohibitively large amounts of capital to develop with present technology. Low-temperature applications (less than 200°F water heating) are being developed, but their potential impact on the overall energy shortage is slight.

One of the most promising efforts in the Southern California area is a project to develop a gas-associated solar water heater for apartment houses (which typically have sufficient storage capacity to carry through the diurnal cycle) sponsored by the National Science Foundation and the Southern California Gas Company. The typical household consumes approximately 30 million Btu per year for water heating. If one-half of the apartment units in Southern California could be converted to the solar system with gas backup, the energy savings for these 1 million households would be about 1.5 percent of the maximum production rate expected for the OCS.

REFERENCES

Abbott, W., 1975, Personal communication (April 21). Santa Barbara County Museum of Natural History.

Alaska Department of Fish and Game, 1973, Alaska wildlife and habitat.

Allen, A.A., 1969, Santa Barbara oil spill. Statement presented to U.S. Senate Interior Committee, subcommittee on minerals, materials, and fuels, May 20.

Anderson, J.W., and Neff, J.M., 1974, Accumulation and release of petroleum hydrocarbons by edible marine animals. Paper submitted to an international symposium entitled "Recent Advances in the Assessment of the Health Effects of Environmental Pollution," Paris, June.

Anderson, J.W. (ed.), 1975, Laboratory studies on the effects of oil on marine organisms: an overview. American Petroleum Institute Publication No. 4249, 70 pp.

Bertness, T.A., 1975, Personal communication (April 15) regarding salinities of produced waters from 130 Southern California oil fields. Mobil Oil Corporation, Los Angeles, California.

Blumer, M., 1967, Hydrocarbons in digestive tract and liver of a basking shark. Science, Vol 156, pp 390-391.

Blumer, M., Sass, J., Souza, G., Sanders, H., Grassele, F., and Hampson, G., 1970a, The West Falmouth oil spill. Woods Hole Oceanographic Institution, Ref. No. 70-44, 32 pp.

Blumer, M., Mullin, M.M., and Guillard, R.R.L., 1970b, A polyunsaturated hydrocarbon (3, 6, 9, 12, 15, 18-heneicosahexane) in the marine food web. Marine Biology, Vol 6, pp 226-236.

Boyd, C.M., 1967, The benthic and pelagic habits of the red crab, Pleuroncodes planipes. Pacific Science, Vol 21, No. 3, pp 394-403.

REFERENCES - 2

Brown & Root, Inc., 1974, Determination of best practicable control technology currently available to remove oil from water produced with oil and gas. Submitted to Sheen Technical Subcommittee, Offshore Operators Committee (in 6 sections, 3 appendixes).

Brownell, R.L., and LeBoeuf, B.J., 1971, California sea lion mortality: natural or artifact?, in D. Straughan (ed.), Biological and oceanographical survey of the Santa Barbara oil spill, 1969-1970. Allan Hancock Foundation, Los Angeles, California, pp 287-306.

Burns, K.A., and Teal, J.M., 1971, Hydrocarbon incorporation into the salt marsh ecosystem from the West Falmouth oil spill. Woods Hole Oceanographic Institution, Ref. No. 71-69, Woods Hole, Massachusetts.

California Coastal Zone Conservation Commission, 1975, Preliminary coastal plan: hearing draft. March, 385 pp, 24 maps.

Card, J.C., Ponce, P.V., and Snider, W.D., 1975, Tank ship accidents and resulting oil outflows 1969-1973. Proceedings of 1975 Conference on Prevention and Control of Oil Pollution, American Petroleum Institute, Washington, D.C., pp 205-213.

Carlisle, J.G., Jr., Turner, C.H., and Ebert, E.E., 1964, Artificial habitat in the marine environment. California Department of Fish and Game, Fish Bulletin No. 124.

Cochran, R.A., Manney, G.A., and Fraser, J.P., 1975, Computer simulation of offshore oil-spill cleanup operations, in Proceedings of Joint Conference on Prevention and Control of Oil Pollution. American Petroleum Institute, Washington, D.C., pp 293-300.

Chevron Oil Field Research Company, 1975, Estimated oil spill potential of proposed Estero Bay Terminal and Estero Bay-Richmond pipeline. Report on project 6002-02 prepared by COFRC, La Habra, California.

Connell, J.H., 1971, Submission to the Royal Commission on oil exploitation on the Great Barrier Reef. May, 14 pp.

REFERENCES - 3

Dames & Moore, 1974, Assessment of potential environmental impacts, in Western Oil and Gas Association, Environmental assessment study, proposed sale of Federal oil and gas leases, Southern California outer continental shelf. Vol 3, Sec IV, 299 pp.

Dames & Moore, 1975, Unpublished observations of subtidal bottom samples obtained during SCUBA diving biological surveys at Point Conception, California, March.

Dames & moore, 1975, Observations made on quarterly baseline biological surveys near Point Conception, California. Unpublished.

Daugherty, A.E., 1966, Marine mammals of California. California Department of Fish and Game, Sacramento, 86 pp.

Daugherty, F.M., Jr., 1951, Effects of some chemicals used in oil well drilling on marine animals. Sewage and Industrial Wastes, Vol 23, No. 10, pp 1282-1287.

DiSalvo, L.H., Guard, H.E., and Hunter, L., 1975, Tissue hydrocarbon burden of mussels as potential monitor of environmental hydrocarbon insult. Environmental Science and Technology, Vol 9, pp 247-251.

Ebeling, A.W., et al, 1971, Short-term analysis of macroplankton and fish. Environmental Protection Agency Contract No. 14-12-534, University of California, Santa Barbara, 68 pp.

Ellis, M.M., 1975, Personal communication (April 10), regarding Bureau of Land Management draft environmental statement OCS sale 35. Union Oil Company of California, Brea, California.

Emery, K.O., 1960, The sea off Southern California. Wiley & Sons, New York, 366 pp.

Foster, M., Charters, A.C., and Nueshul, M., 1971, The Santa Barbara oil spill, part 1: initial quantities and distribution of pollutant crude oil. Environmental Pollution, Vol 2, pp 97-113.

REFERENCES - 4

Foster, M., Neushal, M., and Zingmark, R., 1971, The Santa Barbara oil spill, part 2: initial effects on intertidal and kelp bed organisms. Environmental Pollution, Vol 2, pp 115-136.

Gainsley, David, 1975, Personal communication (April 16). California Department of Fish and Game, Long Beach.

Gulf Universities Research Consortium (GURC), 1974, The offshore ecology investigation, final project planning council concensus report. GURC Report No. 138, 39 pp.

Haseltine, N.G., 1975, Personal communication regarding results of stickleback bioassays on lignosulfonate. Standard Oil Company of California, San Francisco.

J.J. Henry Company, 1973, An analysis of oil outflows due to tanker accidents, 1971-1972. Report CG-D-81-74 for the U.S. Coast Guard, distributed by National Technical Information Service, No. AD-780315.

Keith, V.F., and Porricelli, J.D., 1973, An analysis of oil outflows due to tanker accidents. Proceedings of Joint Conference on Prevention and Control of Oil Spills, Environmental Protection Agency, API, and U.S. Coast Guard, Washington, D.C., pp 3-14.

Kolpack, R.L. (general editor), 1971, Biological and oceanographical survey of the Santa Barbara Channel oil spill, 1969-1970. Vol II, Allan Hancock Foundation, University of Southern California, Los Angeles, 477 pp.

LeBoeuf, B.J., 1971, Oil contamination and elephant seal mortality: a "negative" finding, in D. Straughan (ed.), Biological and oceanographical survey of the Santa Barbara oil spill, 1969-1970. Allan Hancock Foundation, Los Angeles, California, pp 277-285.

Lee, R.F., Saurheber, R., and Benson, A.A., 1972, Petroleum hydrocarbons: uptake and discharge by the marine mussel, Mytilus edulis. Science, Vol 177, pp 344-346.

Lee, R.F., and Benson, A.A., 1973, Fate of petroleum in the sea: biological aspects. Paper submitted to Workshop on Inputs, Fates, and Effects of petroleum in the Marine Environment, Ocean Affairs Board of the National Academy of Sciences, National Research Council, Airlee, Virginia, May 21-25.

REFERENCES - 5

Logan, W.J., 1973, Acute lethal toxicity to trout of drilling fluids and their constituents chemicals as used in the Northwest Territories, in Falk, M.R., and Lawrence, M.J. (eds.), 1973, Acute toxicity of petrochemical drilling fluids, components, and wastes to fish. Environmental Canada Peches et Sciences de la Mer, Technical Report CEN T-73-1, pp 95-108.

Ludwig, H.F., et al., 1960, Analytical characteristics of oil substances found on Southern California beaches. Final report prepared for Western Oil and Gas Association by Engineering-Science, Inc., Arcadia, California.

McKee, J.E., 1956, Oily substances and their effects on the beneficial uses of water. California State Water Pollution Control Board, Sacramento, Publication No. 16, 71 pp.

Mertens, E.W., 1975, Statement before the U.S. Department of the Interior, Bureau of Land Management. Hearing on proposed increase in acreage to be offered for oil and gas leasing on the Outer Continental Shelf. February 6-8, 1975, Beverly Hills, California.

Massachusetts Institute of Technology, 1974, Primary physical impacts of offshore petroleum developments. Report to the Council on Environmental Quality, prepared for the National Oceanic and Atmospheric Administration , by MIT, distributed by National Technical Information Service, No. COM-74-11125.

Massachusetts Institute of Technology, Offshore Oil Task Group, 1973, The Georges Bank petroleum study. MIT, Cambridge, Massachusetts, Summary and Volume II, Report No. MITSG 73-5.

National Academy of Sciences, 1975, Petroleum in the marine environment. Workshop on inputs, fates, and the effects of petroleum in the marine environment, under the auspices of the Ocean Affairs Board, Airlee, Virginia, May 21-25, 107 pp.

National Marine Fisheries Service, 1973, Administration of the marine mammals protection act of 1972. Federal Register 38 (147), August 1.

REFERENCES - 6

Pitcher, K.W., and Vania, J.S., 1973, Distribution and abundance of sea otters, sea lions, and harbor seals in Prince William Sound, summer 1973. Alaska Department of Fish and Game, Preliminary Report 21, December.

Porricelli, J.D., Keith, V.F., and Storch, R.L., 1971, Tankers and the ecology, in Navigible waters safety and environmental quality act. Hearings before the Committee on Commerce, United States Senate, 92nd Congress, September 22-24, Serial No. 92-39.

Rosen, A.A., et al., 1959, Characterization of coastal oil pollution by submarine seeps. California State Water Pollution Control Board, Publication No 21, pp 47-61.

Rosenthal, R., 1975, Personal communication (April 11). Dames & Moore, Anchorage, Alaska.

Schneider, Karl, 1975, Personal communication (April 28). Alaska Department of Fish and Game, Anchorage, Alaska.

Schwartzlose, R.A., and Reid, J.C., 1972, Nearshore circulation in the California Current. CalCOFI Report 16, pp 57-65.

Siva, J., 1974, Oil and the Cook Inlet. Atlantic Richfield Company, May 10, 20 pp.

Siva, J., and Chamberlain, D., 1975, Personal communication (April 10). Atlantic Richfield Company, Los Angeles, California.

Sivadier, H.O., 1972, Measurement of evaporation from oil slicks on the open sea. M.S. thesis, University of California, Santa Barbara.

Southern California Coastal Water Research Project, 1974, Annual report for the year ended June 30, 1974. El Segundo, California, 197 pp.

State of California, 1975, Economic development department labor market bulletins. January.

Stegeman, J.J., and Teal, J.M., 1973, Accumulation, release, and retention of petroleum hydrocarbons by the oyster, Crassostrea virginica. Marine Biology, Vol 22, p 37.

REFERENCES - 7

Straughan, D., 1970, Biological effects of oil pollution in the Santa Barbara Channel. Paper presented at United Nations Food and Agricultural Organization, Technical Conference on Marine Pollution and its Effects on Marine Resources and Fishing. Rome, December.

Straughan, D. (ed.), 1971, Biological and oceanographical survey of the Santa Barbara oil spill. Biology and Bacteriology, Vol 1, Allan Hancock Foundation, University of Southern California, Los Angeles, California, 426 pp.

Straughan, D., 1973, Biological studies of the Santa Barbara oil spill. Reprint from Santa Barbara Channel Region Revisited, American Associaton of Petroleum Geologists Trip 3. 1973 Annual Meeting, AAPG-SEPM-SEG, pp 4-16.

Takahashi, F.T., and Kittredge, J.S., 1973, Sublethal effects of the water soluble component of oil: chemical communication in the marine environment, in The microbial degradation of oil pollutants. Center for Wetland Resources, Louisiana State University, SG-73-01, pp 259-264.

Taylor, W.M., 1975, Personal communication (April 11), regarding Bureau of Land Management draft environmental statement. Exxon Company, USA, Los Angeles, California.

Trask, T., 1971, A study of three sandy beaches in the Santa Barbara, California area, in D. Straughan (ed.), Biological and oceanographical survey of the Santa Barbara Oil Spill 1969-1970. Allan Hancock Foundation Los Angeles, California, pp 159-178.

Turner, C.H., Carlisle, J.G., and Ebert, E.E., 1971, Offshore oil drilling, its effect upon the marine environment. Final report to Western Oil and Gas Association under terms of a cooperative agreement between the Association and the California Department of Fish and Game, entered into July 2, 1958, 97 pp.

Turner, C.H., Ebert, E.E., and Given, R.R., 1969, Man-made reef ecology. California Department of Fish and Game, Fish Bulletin No. 146.

REFERENCES - 8

U.S. Army Corps of Engineers, 1968, Littoral environment observation program in California. Report MP 2-70, prepared by the Coastal Engineering Research Center.

U.S. Department of Commerce, Bureau of the Census, 1975, Current population reports, consumer income: money income in 1973 of families and persons in the United States. Series P-60, No. 97, January.

U.S. Department of Commerce, Coast and Geodetic Survey, 1973, Bathymetric Chart No. 5101, San Diego to Santa Rosa Island, National Oceanic and Atmospheric Administration, National Ocean Survey.

U.S. Department of the Interior, Bureau of Land Management, 1975, Draft environmental statement: proposed 1975 outer continental shelf oil and gas general lease sale offshore Southern California. OCS Sale No. 35, Vol 1-4.

U.S. Department of the Interior, Geological Survey, Conservation Division, Pacific Region, 1971, Outer Continental Shelf Order No. 7, Pollution and waste disposal, 4 pp.

U.S. Department of the Interior, Geological Survey, Conservation Division, Pacific Region, 1971, Outer Continental Shelf Order No. 8, approval procedure for installation and operation of platforms, fixed and mobile structures, and artificial islands, 13 pp.

U.S. Department of the Interior, Geological Survey, Conservation Division, Pacific Region, 1971, Outer Continental Shelf Order No. 9, approval procedure for pipelines, 4 pp.

U.S. Department of Transportation, Coast Guard, 1975, San Pedro Channel/Gulf of Santa Catalina traffic separation scheme continuation, Local Notice to Mariners No. 3-75, p 1.

U.S. Navy, 1970, Summary of synoptic meteorological observations, North American coastal marine areas. Distributed by National Technical Information Service, Vol 7, AD-709054 and Vol 8, AD-710771.

REFERENCES - 9

Valentine, J.W., 1966, Numerical analysis of marine molluscan ranges on the extratropical northeastern Pacific shelf. Limnology and Oceanography, Vol 11, pp 198-211.

Vaughan, B.E., (ed.), 1973, Effects of oil and chemically dispersed oil on selected marine biota - a laboratory study. Report on Contract 212800439 to American Petroleum Institute, Battelle Pacific Northwest Laboratories, Richland, Washington, June.

Waldman, G.D., Johnson, R.A., and Smith, P.C., 1973, The spreading and transport of oil slicks on the open ocean in the presence of wind, waves, and currents. Final report on Contract DOT-CG-20617-A prepared for the U.S. Coast Guard by AVCO Corporation, Wilmington, Massachusetts, 84 pp.

Washington State, 1974, Offshore petroleum transfer systems for Washington state. Prepared by the Oceanographic Institute of Washington, December 16.

Western Oil and Gas Association (WOGA), 1974, Environmental assessment study, proposed sale of federal oil and gas leases, Southern California outer continental shelf. Vols 1, 2, and 3, Appendices 1-10, and Executive Summary.

Wickham, D.A., and Russell, G.M., 1974, An evaluation of midwater artificial structures for attracting coastal pelagic fishes. Fish Bulletin Vol 72, pp 181-191.

Wilkinson, E.R., 1972, California offshore oil and gas seeps. California Division of Oil and Gas, Sacramento, Report No. TR08, 11 pp.

Zingula, R.P., 1975, Statement for the environmental impact hearing, Trenton, New Jersey, on February 11-14, regarding the proposed increase of oil and gas leasing on the outer continental shelf, 21 pp.

APPENDIX

TABLE A-1 Platform Visibility Potential - by Tract

TABLE B-1 Area 22 - Visibility in Nautical Miles for Offshore Areas

TABLE B-2 Area 24 - Visibility in Nautical Miles for Offshore Areas

TABLE A-1

PLATFORM VISIBILITY POTENTIAL - BY TRACT

Tract No.	Block	Depth (M)	Distance to Shore (miles)	Visual Prominence	Atmospheric Obscurity	Amount of Structure Visible	Composite Rank Value
1 to 193	Not included because they cannot be seen due to earth's curvature. "0" composite rank value.						
194	33N 47W	750	18	0.24	0.52	0.19	0.0237
195	33N 46W	750	18	0.24	0.52	0.19	0.0237
196	32N 57W	500	46				0
197	32N 56W	375	43				0
198	32N 51W	750	29				0
199	32N 50W	750	27				0
200	32N 49W	750	25				0
201	32N 48W	750	22				0
202	32N 47W	750	11	0.30	0.88	0.63	0.166
203	31N 57W	475	47				0
204	31N 56W	250	44				0
205	31N 55W	250	43				0
Santa Monica Bay							
206	44N 55W	325	4	0.50	0.97	1.00	0.485
207	44N 54W	325	3	0.58	0.97	1.00	0.563
208	44N 53W	250	3	0.58	0.97	1.00	0.563
209	43N 55W	600	6	0.41	0.88	0.94	0.339
210	43N 54W	500	5	0.45	0.97	1.00	0.437
211	43N 53W	450	4	0.50	0.97	1.00	0.485
212	43N 52W	450	4	0.50	0.97	1.00	0.485
213	42N 52W	750	3	0.58	0.97	1.00	0.563
214	42N 51W	750	5	0.45	0.97	1.00	0.437
215	42N 50W	600	5	0.45	0.97	1.00	0.437
216	42N 49W	500	4	0.50	0.97	1.00	0.485
217	42N 48W	500	3	0.38	0.97	1.00	0.563
218	42N 47W	300	5	0.45	0.97	1.00	0.437
219	42N 46W	250	5	0.45	0.97	1.00	0.437
220	42N 45W	250	5	0.45	0.97	1.00	0.437
221	42N 44W	250	4	0.50	0.97	1.00	0.485
222	41N 49W	750	5	0.45	0.97	1.00	0.437
223	41N 48W	600	7	0.38	0.88	0.88	0.294
224	41N 47W	500	8	0.35	0.88	0.82	0.253
225	41N 46W	250	8	0.35	0.88	0.82	0.253
226	41N 45W	250	6	0.41	0.88	0.94	0.339
227	41N 44W	250	4	0.50	0.97	1.00	0.485
228	40N 48W	750	10	0.32	0.88	0.69	0.194
229	40N 47W	750	11	0.30	0.88	0.63	0.166
230	40N 46W	300	10	0.32	0.88	0.69	0.194
231	40N 45W	250	7	0.38	0.88	0.88	0.294
232	40N 44W	250	4	0.50	0.97	1.00	0.485
233	40N 43W	250	3	0.58	0.97	1.00	0.563
234	39N 46W	250	11	0.30	0.88	0.63	0.166
235	39N 45W	250	8	0.35	0.88	0.82	0.253
236	39N 44W	250	5	0.45	0.97	1.00	0.437
237	39N 43W	250	3	0.58	0.97	1.00	0.563
238	38N 45W	700	7	0.38	0.88	0.88	0.294
239	38N 44W	400	4	0.50	0.97	1.00	0.485
240	37N 45W	750	7	0.38	0.88	0.88	0.294
241	37N 44W	750	5	0.45	0.97	1.00	0.437
San Pedro Bay							
242	36N 36W	250	4	0.50	0.97	1.00	0.485
243	35N 41W	750	6	0.41	0.88	0.94	0.339
244	35N 40W	500	5	0.45	0.97	1.00	0.437
245	35N 39W	250	5	0.45	0.97	1.00	0.437
246	35N 38W	250	7	0.38	0.88	0.88	0.294
247	35N 37W	250	6	0.41	0.88	0.94	0.339
248	35N 36W	250	4	0.50	0.97	1.00	0.485
249	35N 35W	250	4	0.50	0.97	1.00	0.485

TABLE A-1 (Continued)

Tract No.	Block	Depth (M)	Distance to Shore (miles)	Visual Prominence	Atmospheric Obscurity	Amount of Structure Visible	Composite Rank Value
250	34N 41W	750	8	0.35	0.88	0.82	0.253
251	34N 40W	400	7	0.38	0.88	0.88	0.294
252	34N 39W	250	7	0.38	0.88	0.88	0.294
253	34N 38W	250	9	0.33	0.88	0.75	0.218
254	34N 37W	250	8	0.35	0.88	0.82	0.253
255	34N 36W	250	6	0.41	0.88	0.94	0.339
256	34N 35W	250	5	0.45	0.97	1.00	0.437
257	33N 41W	750	11	0.38	0.88	0.63	0.166
258	33N 40W	700	10	0.32	0.88	0.69	0.194
259	33N 39W	250	10	0.32	0.88	0.69	0.194
260	33N 38W	250	11	0.30	0.88	0.63	0.166
261	33N 37W	250	10	0.32	0.88	0.69	0.194
262	33N 36W	250	8	0.35	0.88	0.82	0.253
263	33N 35W	250	7	0.38	0.88	0.88	0.294
264	33N 34W	250	5	0.45	0.97	1.00	0.437
265	32N 30W	750	13	0.28	0.52	0.50	0.073
266	32N 38W	500	14	0.27	0.52	0.44	0.062
267	32N 37W	250	13	0.28	0.52	0.50	0.073
268	32N 36W	400	10	0.32	0.88	0.69	0.194
269	32N 35W	350	9	0.33	0.88	0.75	0.218
270	32N 34W	275	7	0.38	0.88	0.88	0.294
271	32N 33W	300	6	0.41	0.88	0.94	0.339
272	32N 32W	500	5	0.45	0.97	1.00	0.437
273	31N 37W	500	15	0.26	0.52	0.38	0.051
274	31N 36W	500	13	0.28	0.52	0.50	0.073
275	31N 35W	500	11	0.30	0.88	0.63	0.166
276	31N 34W	500	10	0.32	0.88	0.69	0.194
277	31N 33W	500	9	0.33	0.88	0.75	0.218
278	31N 32W	500	7	0.38	0.88	0.88	0.294
279	31N 31W	500	5	0.45	0.97	1.00	0.437
280	30N 36W	550	15	0.26	0.52	0.38	0.051
281	30N 35W	500	14	0.27	0.52	0.44	0.062
282	30N 34W	500	11	0.30	0.88	0.63	0.166
283	30N 33W	500	7	0.38	0.88	0.88	0.294
284	30N 32W	500	9	0.33	0.88	0.75	0.218
285	30N 31W	500	7	0.38	0.88	0.88	0.294
286	30N 30W	500	5	0.45	0.97	1.00	0.437
287	29N 35W	450	17	0.24	0.52	0.25	0.031
288	29N 34W	400	15	0.26	0.52	0.38	0.051
289	29N 33W	500	12	0.29	0.52	0.56	0.084
290	29N 32W	500	9	0.33	0.88	0.75	0.218
291	29N 31W	500	7	0.38	0.88	0.88	0.294
292	29N 30W	500	5	0.45	0.97	1.00	0.437
293	28N 34W	600	16	0.25	0.52	0.31	0.040
294	28N 33W	500	14	0.27	0.52	0.44	0.062
295	28N 32W	500	12	0.29	0.52	0.56	0.084
296	28N 31W	500	10	0.32	0.88	0.69	0.194
297	28N 30W	500	8	0.35	0.88	0.82	0.253

TOTAL: 297 tracts

Notes:

As explained in Section 7.1, Visual Aesthetics, this table provides a comparative ranking of the potential for onshore visual impact that could occur from the placement of a platform within any specific tract. The composite rank provided for a tract becomes meaningful when it is compared to the rank of any other tract and must therefore be considered relative.

Certain assumptions and methodologies that were utilized in the preparation of this table must be recognized to ensure the correct interpretation of the data contained herein. These are as follows:

1. The prominence a structure has is expressed as $\frac{1}{\sqrt{D}}$ where D = distance in statute miles
2. Typical visibilities due to the presence (or lack of) haze, fog, and low clouds were obtained by averaging the data from two block areas (see Appendix B) which comprise the proposed OCS lease. This information represents the most conservative interpretation of the visibility data, since there was no effort to break it down on a mile-by-mile basis. Only three general categories were used. These are as follows:

	Miles of Visibility		
	1-5	6-11	12+
Percent of year	0.97	0.88	0.52

3. The function used to express the earth's curvature is also conservatively high since the evaluation was prepared assuming the eye level if the viewer would at 15 feet, instead of beach level. Also, the typical derrick height of 176 feet was used instead of a production platform height of 80 feet.
4. The composite rank is an abstract value obtained by multiplying the three described criteria. An idealized value of 1.00 should be obtained by standing directly in front, and within arms reach of a platform.

TABLE B-1

AREA 22*

VISIBILITY IN NAUTICAL MILES FOR OFFSHORE AREAS

	<1/2	1/2<1	1<2	2<5	5<10	10+
Jan	1.9	0.7	1.0	3.7	38.4	54.3
Feb	1.9	0.9	1.0	3.9	35.3	57.0
Mar	0.9	0.5	0.6	2.5	32.5	62.9
Apr	1.5	0.5	0.7	3.6	34.0	59.6
May	0.4	0.3	0.4	2.6	35.9	60.5
Jun	1.1	0.7	0.8	4.1	44.8	48.6
Jul	0.6	0.6	0.9	5.5	46.8	45.7
Aug	0.6	0.3	0.8	5.1	44.9	48.3
Sep	1.4	0.6	0.8	4.9	47.1	45.1
Oct	1.3	0.9	1.6	6.0	41.2	49.1
Nov	1.7	0.2	0.8	5.5	41.0	50.7
Dec	2.5	0.7	1.5	5.9	38.4	51.0
Total	15.8	6.8	11.7	53.5	441.9	632.8
Average	1.3	0.6	1.0	4.4	40.0	52.7

Source: U.S. Naval Weather Service Command Summary of Synoptic Meteorological Observations, North American Coastal Marine Areas, Volume 7

*Area 22 corresponds to the offshore area from Ventura south to the northern portion of Baja California.

TABLE B-2

AREA 24*

VISIBILITY IN NAUTICAL MILES FOR OFFSHORE AREAS

	1/2	1/2<1	1<2	2<5	5<10	10+
Jan	0.5	0.4	1.3	4.4	28.1	65.4
Feb	2.6	1.4	2.8	5.6	27.2	60.5
Mar	1.4	0.8	2.2	6.9	31.5	57.2
Apr	2.3	1.7	4.3	10.4	28.7	52.6
May	1.9	2.1	4.1	8.1	30.0	53.8
Jun	1.5	2.0	3.0	9.3	38.8	45.4
Jul	2.8	2.7	5.1	16.1	38.0	35.2
Aug	3.0	2.8	5.9	15.9	34.4	37.9
Sep	4.6	2.4	3.7	12.1	38.5	38.7
Oct	5.0	3.6	5.5	13.8	30.1	42.1
Nov	3.3	1.3	2.0	8.3	30.5	54.6
Dec	1.5	1.2	1.8	5.3	25.2	65.0
Total	30.4	22.4	41.7	116.2	381.0	608.4
Average	2.5	1.9	3.5	9.7	31.8	50.7

Source: U.S. Naval Weather Service Command Summary of Synoptic Meteorological Observations, North American Costal Marine Areas, Volume 7

*Area 24 corresponds to the offshore area from Ventura north to about Point Sur.

a. Dames and Moore (D&M)

Dames and Moore (D&M), under contract to WOGA, submitted extensive detailed comments in review of the DEIS as an attachment to the public hearing record. All comments and information were considered and, wherever appropriate, were included in the FEIS. The critique contained addressed the impacts associated with drilling and production operations, natural processes, and human actions that would follow the proposed lease sale. Due to its size, each section of the critique will be summarized and BLM's response will follow.

Section 2.0 Operational Discharges to the Ocean

D & M: The BLM predictions of significant adverse impacts on water quality and biota from operational discharges "...are almost entirely unsubstantiated by supporting quantitative data or reference to relevant field observations. In addition, there are several cases where the BLM DES ignores recent studies that negate these adverse predictions. Further, the BLM DES omits the logical and very important comparison of the projected OCS operational discharges with the numerous large scale natural and man-made effluent discharges to the Southern California Bight. In such a comparison, it is apparent that the OCS operational discharges are miniscule in both size and effect." These and other comments are appreciated and have been given due consideration.

Disposition

Although some studies have been performed that indicate drilling and oil operations have no effect on the marine environment, we do not believe sufficient data has been accumulated to rule out the possibility of major adverse impacts.

Concerning ratios of produced formation water, we estimated based on information from GS that a maximum ratio of produced waste water to oil would be about 2-3 barrels water per barrel oil. The average ratio would be about 1:1.

Although it was indicated in the comments that volminous data is available on the composition of brines in the Southern California area, only a few selected reports have been detailed prior to the FEIS. From this information we have made the necessary change in the text.

The final text has been corrected with regard to the change in toxicity of produced waters with time (see Section III.F.2.). We agree that the composition of water from a Miocene formation will not change with time. However, composition of water can vary from formation to formation. Also, water from an Eocene formation below the Miocene horizon could be vastly different.

With respect to mercury in formation water (Volume 2, p. 194), we have indicated in the text that White, et al. (1970) found 2 to 21 ppm mercury in crude oil and 100 to 200 ppb in the formation water of the Cymic fields near Santa Barbara. However, White himself expresses reservations about these conclusions.

Concerning sanitary wastes, pp. 190 and 417 of the DEIS, this has been corrected to indicate treated sewage should procude a minimum amount of water quality deterioration except in the immediate area of sewage discharge.

Section 3.0 Operational Discharges to the Atmosphere

D & M: A divergent opinion was expressed concerning the magnitude of daily operational discharges. There was general agreement with regard to potential impacts on air quality. Strong disagreement was expressed concerning consumer usage of natural gas produced from OCS operations.

Disposition

Volume 2, Sections III.F.1. and V.C. have been revised and expanded to reflect these and other comments. In regard to consumer use of natural gas, the FEIS discusses the effects of low sulfur content in natural gas. It does not address the added air pollution that might result from the burning of fuel oil if the natural gas were not available offshore.

Section 4.0 Other Impacts of Facilities Construction and Operation

4.1 Offshore Platforms and Associated Facilities

D & M: A list of platforms and related facilities is presented. Along the coastal shelf 18 production and treatment platforms are projected. In the Borderlands, ten production and treatment platforms are anticipated to support subsea wells. Thirty four production platforms and six production and treatment vessels are projected to support deepwater subsea wells. These projections assume 14 billion barrels of oil to be recovered from the sale area.

Disposition

These projections are in agreement with the BLM's high case forecast.

4.1.1. Impact on Navigation

D & M: Dames and Moore recommend that additional identification of the shipping lanes be included.

Disposition

The revised description of the traffic separation scheme, previously identified as shipping lanes, has been made. See Section III.G.

4.1.2. Impact on Commercial Fishing

D & M: Concern was expressed with the proximity evaluation for structures. Dames and Moore feel the impact on fishing is overstated and disagree with figures used for time it takes a purse-seiner to complete a set.

Disposition

The proximity evaluation in Section III.K.-M. concerning commercial fisheries admittedly has a number of flaws. This evaluation is only meant to be a rough tool in helping to estimate impacts. The potential impacts of OCS development are better discussed in narrative Sections III.E., IV.I.5. and V.E.

Although Dames and Moore received their information from the California Department of Fish and Game too, information provided to the BLM by the California Department of Fish and Game indicates that purse seiners do not take one hour to set, but generally take two to four. During a four house set it is not unlikely that a boat would drift 15 miles under a 15 knot wind.

4.1.3. Impact on Sports Fishing

D & M: Comments were made regarding the beneficial effects offshore structures have on fish.

Disposition

Section III.I.4. has been revised in the FEIS and the concentrating effect platforms have on fish populations is discussed.

4.1.4. Other Impacts

D & M: The comments were concerned with the simplistic and arbitrary analysis used in the proximity evaluation for structural impacts on seal rookeries.

Disposition

Volume 2, Section III.C.3., Impact on Marine Mammals, provides detailed and expanded discussion of impacts on rookeries.

4.2 Pipeline Emplacement

4.2.1. Impact on Water Quality and Marine Biota

D & M: Dames and Moore disagree with BLM's discussion concerning the impact due to resuspension of sediment from pipeline emplacement.

Disposition

We feel, as indicated in the DEIS, that significant impacts can result in local areas from polluted sediment resuspension. In order to know the magnitude of the impacts, various unknown parameters will have to be identified. Some of these parameters would be, as indicated by WOGA, the physical and chemical characteristics of the polluted sediment and local marine environment. Identification of these parameters should be made for each site location. Although we do know that certain areas within the Borderland (see Section II.H. and III.F.) contain sediments that have been polluted by industrial waste, the composition and volume have not been identified.

If any OCS areas are leased, then the location sites of sediment resuspension should be identified quantitatively and qualitatively for potential pollutant chemical constituents.

D & M: Dames and Moore commented that greater resuspension of polluted sediments would result from trawling operations and harbor construction than from OCS activities.

Disposition

Even though trawling and harbor activities may create large environmental impacts due to resuspension of polluted sediments, we feel this in no way will decrease the significance of any such impact incurred by oil activities.

4.3. Land Based Facilities

D & M: Land based facilities to develop the sale area are presented. Oil terminal and supply operations will require 240 acres. One LNG regasification terminal will also be needed. In addition, mooring facilities for 125-128 various types of vessels will be necessary.

Disposition

These estimates are in general agreement with BLM's high use projections.

4.3.1. General Impact of Land Based Facilities

D & M: Platform construction will have a minor impact on the environment. If cleanup bases were established on the offshore islands environmental impact could occur.

Disposition

BLM agrees with this assessment. Refer to the response to the U.S. Fish and Wildlife Service comment on use of the Channel Islands for petroleum facilities.

4.3.2. Impacts on Marine Mammals

D & M: Discussion here was concerned with Volume 2, Sections III.C. and D. It is the opinion of Dames and Moore that evidence does not support the BLM's strong concern over possible abandonment of pinniped rookeries as a result of OCS operations.

Disposition

We are not aware of any currently documented evidence that would negate the possible impacts on marine mammals outlined in the DEIS for the Southern California area. The study cited concerning harbor seals in Alaska cannot be applied directly to Southern California. To begin with, the Southern California population of harbor seals is estimated at from 500 to 1,000 individuals, while the Alaskan area has from 50,000 to 150,000 individuals. A localized disturbance in the vast area of Alaskan waters would hardly be noticeable, whereas an equal amount of disturbance in the Southern California area would be much more noticeable. Also the human population of the Cook Inlet area of Alaska is negligible when compared to the Southern California area; and, the number of available haul out and breeding areas in Alaska far exceed these in California. These and many other differences make direct comparison of the two areas highly speculative at best. The cited study is also not applicable to the behavior of the other five species of pinnipeds which occur off Southern California. Because of the importance of the resource we feel a conservative approach is warranted.

It is interesting to note, however, that even in the Alaskan study, there were no high density harbor seal populations within five miles of any platform or onshore facility, although the reason for this distribution is unknown.

D&M: Dames and Moore emphasized that the level of harassment required to induce abandonment of rookeries is unknown and increased public access to pinniped rookeries is not anticipated at this thime.

Disposition

We agree that the level of harassment required to induce abandonment of rookeries is unknown and because of this there should not be any further development of the Channel Islands until such data is available.

We disagree with the statement that OCS developments would not increase public access to rookery areas of pinnipeds.

As stated in the WOGA Environmental Assessment Study (Volume 3, Section

IV.G.1.5.2., page 6-5) under Beneficial Usage of Offshore Platforms):

> This approach would seek to improve platform acceptance by expanding the facilities' utility to boaters and fishermen. Anchorage, and perhaps breakwater zones (such as might be afforded by tethered underwater spherical floats and other new breakwater concepts) would be provided for small craft. Improved fishing that would be available around the platforms would be an attraction to small craft. But before this could be reasonably undertaken, favorable resolutions would have to be found to several factors, such as: increased exposure of the public to boating hazards in the OCS waters due to increased use of the area, safety exposure close to the platforms, and liability exposure of providing public facilities.

Past and present experiences clearly show that increases in boating or other use of the OCS area, in particular around the Channel Islands, has resulted in increased poaching of marine invertebrates and disturbance and harassment of marine birds and mammals (National Park Service, 1975).

D & M: Dames and Moore stated that California sea lion protection policy has fluctuated from strict protection to systematic killing. In addition, although sea lions are protected now, commercial and sport fishermen are allowed to kill sea lions when they interfere with fishing. Also, they state that local populations would find other rookeries elsewhere in the Channel Islands rather than abandon the area.

Disposition

Only commercial fishermen can obtain permits to "take" a marine mammal which is tangled in or otherwise interfering with their fishing operations and then they must use all other possible methods to try to scare off or free the mammals before they can kill them. No sport or party boat fishermen are allowed to take any marine mammal (National Marine Fisheries Service, 1975).

See Volume III, Section C.3., for a discussion of the possibility of pinnipeds relocating on other areas of the Channel Islands.

D & M: Sea otter reestablishment in Alaska is discussed.

Disposition

Appropriate changes have been incorporated in Volume 2, Section III.C.3. concerning reestablishment of sea otters.

Section 5.0 Spill Analysis

5.1 Spill Statistical Analysis

D & M: Dames and Moore presented a detailed critique of Section III.A. with many helpful suggestions.

Disposition

Section III.A. has been substantially revised based on comments from Dames and Moore, U.S. Geological Survey and EPA.

5.2. Oil Spill Movement

5.2.1. Proximity Evaluation

D & M: Comments questioned the treatment of impact potential presented in the Proximity Evaluation, Sections III.K.-L.

Disposition

We agree that the proximity analysis has several shortcomings. It is an attempt to present to the decision-maker a rating of potential impacts on various areas by consideration of distance to the closest resource only. As noted in Section III.B., there are many complex variables involved in attempting to predict effects of oil spills or analysis of impacts in the marine environment. These other variables and analyses are treated in the respective impact sections where applicable.

5.2.2. Spill Scenarios

D & M: Dames and Moore criticized the scenarios as being incorrect and unrealistic because of improper application of theoretical models and offered suggestions for improvement.

Disposition

The spill scenarios were designed to be a rough estimation of near maximum impact for a large spill. The many variables (outlined in Section III.B.) involved in the fate of an oil spill in the marine environment make it extremely difficult, if not impossible, to predict the exact outcome of a large spill. We further realize that there are many possible scenarios with effects between the three cases outlined in Section III. In another evaluation, we have been criticized for only considering a minimal oil spill scenarios. The situation, therefore, is reduced to an educated rough estimation of oil spill impacts regardless of who formulates the scenarios.

We thank Dames and Moore for their criticisms and suggestions, the following of which we have incorporated into the FEIS.

1. There have been two oil drift velocities adopted, a maximum and a high minimum. The maximum case follows the more extreme situation when an oil slick travels directly to shore at between 0.7 mph to 1 mph (5% speed of a 20 mph wind). The high minimum assumes a 0.45 mph oil slick velocity (3% speed of a 15 mph wind).

2. High winds do speed the detoxification of an oil slick. However, the detoxification under these conditions would still be less than if the slick drifted on the ocean for several days before it reached shore.

3. The scenarios were corrected to give what we feel is the best estimate of an impact from an oil spill spreading over an area. The scenario considers that the wind moves the oil toward shore but does not aid in the spreading or diffusion of the oil mass. A new scenario of a continuous source was added to give a value of what the maxium plume length would be with current taken into consideration.

After considering scenario case three we feel that the scenario is realistic and perhaps uses a low depositional rate rather than a high rate, as indicated by WOGA. Considering that Sivordier and Mikolaj (1973) found that 20% of the oil mass was lost in 1-2 hours, due to evaporation, the density approached that of water, and the oil mass is in an area of high particulate matter, then it does not seem unrealistic that only 30% of the remaining oil mass will settle to the ocean floor.

4. The surface thickness of a 500 square mile slick on the water would be very small.

5.2.3. Oil Spill Containment and Cleanup

D & M: Dames and Moore feel there is an imbalance between adverse impacts presented in oil spill scenarios and information presented for spill containment and cleanup. It was suggested:

> To fully inform the reader of what might be expected in the event of a major spill, the BLM DES should include scenarios of cleanup efforts similar to those presented for absolute worst case conditions of no cleanup activity

in BLM DES (Vol. 2, pp. 57-60). Such cleanup scenarios should emphasize not only the initial spill size, but more importantly, the volume of oil that may reasonably be expected to escape and thereby cause damage.

An example of the type of information that would put oil spill risk into proper perspective is given in a recent study performed by Cochran, Manney, and Fraser (1975). In this study, a computer simulation program was used to evaluate the effectiveness of oil spill contingency plans for a variety of spill types and sizes. An important feature of the program was the incorporation of wind and wave cleanup efficiency under potential adverse conditions.

Although the above study was performed using wind and wave data for the Gulf of Mexico, the findings should still illustrate what might be expected for the proposed lease sale area. In the case of a 24,000 bbl spill for which no containment measures are taken, a single skimmer could recover approximately 18 percent of the oil in the first four days. Beyond this time, recovery is difficult because the oil would have spread over a large area.

When the same spill is examined with containment efforts being undertaken, either by mechanical booms or surface tension "herders", the average expected oil recovery during the first 4 days increases to 81 to 90 percent. Thus, even though the oil release was 24,000 bbl, the *effective* size of the spill, i.e., the volume of oil that is available for producing damage, is less than 5,000 bbl. In the case of a 120,000 bbl spill, the study shows that 2 skimmers operating for 4 days can be expected to pick up an average of 70 to 83 percent of the spilled oil, depending on the effectiveness of the containment boom. With continued cleanup operations, the *effective* size of the 120,000 bbl spill could be expected to be reduced to considerably less than 10,000 bbl.

Additional information on the expected results of oil spill containment and cleanup measures is presented in the Dames and Moore study (1974), Chapter 6.2. This information, along with methods of analyses described above, should be used by BLM to emphasize that only a *small portion* of any major or moderate oil spill will escape mitigative action.

Disposition

The DEIS is in general agreement with the simulation program in that booms can contain and clean up oil when waves are small. However they do not operate effectively in seas above 6-8 feet (see Section II.C. for a discussion of frequency of various wave heights).

We would also agree that wind and wave data from the Gulf of Mexico can illustrate what might be expected from a major or moderate spill that escapes cleanup. Even the small portion of any major or moderate spill that escapes will be significant.

Data provided to us from the U.S. Geological Survey inspection reports for 5/1/72 through 9/30/74 showed significant spills greater than 15 barrels reported. They are described below:

1. A derrick barge at anchor drifted when a squall came up. The anchor dragged across 12" pipeline and the riser was broken loose from platform one mile away resulting in 100 barrels of oil spilled. This spill was detected on the platform when the shut-off valve activated. Clean-up equipment was mobilized at shore but was not used due to rough seas.
2. Anchor apparently hooked a 4 1/2" oil pipeline and pulled the riser loose from the platform. Thirty barrels of oil were spilled. This spill was noticed by the oil company on the platform which manually shut-in the well. Clean-up equipment was dispatched to the area.
3. A 10" line was ruptured by a work boat which had gone aground. Twenty barrels of oil were spilled. This occurred within state waters in a bay and was detected by a boat crew. Hay and other absorbents were used to clean up the oil. All of the wells in South Timbalier 20 were shut-in manually until repairs were made.
4. On an unmanned platform, the high liquid level shut-in on a storage tank failed, causing spill of 130 barrels. An unidentified source notified the Coast Guard. Clean-up equipment was mobilized but was not able to be used due to rough seas. The tank was manually shut-in.
5. Casing valve was broken off a wellhead by a hurricane causing 75 barrels to be spilled. This spill was detected during routine checks by the operator. The spill dissipated in rough seas.
6. An 8-inch pipeline was apparently moved and torn loose at its connection with 12-inch transmission line during hurricane. Oil was pumped into transmission line at a point upstream of break before integrity of entire system was checked. Two thousand two hundred and thirteen barrels were spilled. U.S. Geological Survey detected this spill during a reconnaissance flight. Clean Gulf Associates mobilized clean-up equipment for the clean-up operation. The well was manually shut-in when the spill was detected.

5.3.1. Oil Spill Proximity Evaluation

D & M: The weaknesses of the proximity evaluation were discussed.

Disposition

As noted above, the proximity evaluation is a generalization, the accuracy and usefulness varies with the resource. More detailed discussions of specific resources are covered under their appropriate sections of this EIS. The criticisms mentioned by Dames and Moore on the proximity evaluation are generally justified and are indicated in the EIS under the appropriate resource section.

5.3.2. General Effects of Hydrocarbons on Biota

D & M: Dames and Moore disagree with the validity of statements on food chain magnification and organismic accumulation of hydrocarbons versus depuration.

Disposition

Evidence is increasing which suggests that marine organisms have the ability to depurate accumulated petroleum hydrocarbons. See Sections IV.D.1. and III.E.3. Although classical food chain magnification apparently does not occur, temporary buildups do and will cause some biological impacts, although far less than in the case of complete petroleum hydrocarbon retention (see Section III.E.3.). Many of the sublethal impacts, although measurable, may be of short duration or nonexistant because of the great dilution possible in oceanic areas.

Concerning Tanner and Cortes Banks, few changes were found advisable. We have further evidence for the uniqueness of the area from an experienced diver who spent considerable time diving on the banks. We have tried to emphasize the speculative nature of some of the statements.

5.3.3. Effects on Specific Components of Marine Ecosystems

D & M: This section contains comments on the effects of oil on plankton, nekton, benthos and marine mammals as discussed in the DEIS. Dames and Moore dispute some of the conclusions and also the discussion of red crab resources in the nekton section.

Disposition

References to the quotation from Straughan (1970) have been made in the text in Section III.C.1.a. In the summary of impacts of oil spills on plankton it is mentioned in the text that toxic effects causing direct kill of plankton from oil spils is expected to be of low severity with possibly a higher severity effect for the neuston community at the water surface.

It is impossible to quantify the "magnitude of probable nekton mortality" as a result of a major oil spill due to the large number of variables in the dynamic marine environment (see Table in Section III.B.). The impacts summarized on this and the following page are already qualified as "possible impacts". Estimates of oil spill magnitude and frequency as well as impacts in Table III-14 of the DEIS are already described as "...rough estimates of probable events and effects."

The observation of Ebeling et al. (1971) concerning effects of the Santa Barbara spill has been added to the text in Section III.C.1.b.

Table III-14 of the DEIS summarizing the impacts on the nekton has been revised to consider the comment on direct kill of nekton and fish larvae as a result of a large spill.

We agree with the comment that the area of greatest abundance for the pelagic red crab, *Pleuroncodes planipes*, is off the coast of Baja California. The text has been changed to reflect this more clearly. We have included the distribution map from Boyd (1967) in Section II.E.4.e. of Volume 1. However, Frey (1971) indicates that their distribution over the area is variable and affected by climatic and mass transport conditions (see Section II.E.4.e.).

5.4 Other Impacts

D & M: Dames and Moore disagree with the discussion of the amounts of low molecular weight fractions contained in natural seep oil.

Disposition

Although there is a tremendous variability in the composition of oil seeps, generally these natural seeps have lower amounts of the low molecular weight fractions and a higher asphaltene content in this area. Apparently there is no difference in the aromatics of most seep oil and crude. (See changes in Section III.B.).

6.0 Human Environmental Considerations

6.1. Visual Aesthetics

D & M: Comments concerned a detailed analysis of visual aesthetics relating to offshore structures. Dames and Moore pointed out that the greatest potential for exposure for viewing offshore structures would be in the Santa Monica Bay and San Pedro Bay tract areas.

Disposition

We thank Dames and Moore for their detailed analysis presented in this section and the photographs supplied. The comments were in general agreement with impacts discussed in Sections III.I.2. Refer to Section VIII.A.5. for our proposed alternative to protect Santa Monica Bay and San Pedro Bay.

6.2 OCS Project and Coastal Zone Plan

D & M: No specific comments were made, only a general discussion on why no conflicts would arise between the OCS program and the California Coastal Plan.

Disposition

No response is required. A summary of their comments follows.

6.3 Employment and Income

This section gives a brief overview of the potential employment and population effects of the proposed sale over its projected life of 75 years assuming 14 billion barrels of oil is recovered.

6.3.1. Employment

D & M: The projections assume the completion of 60 platforms, two platforms a year over a 30-year period. Direct employment in the first five years is projected at 4,800 increasing to a high of 16,300 in 11 to 15 years and declining to 1,600 in 66 years. Secondary employment would be 5,800 in the first five years increasing to 1,900 in 66 years. These figures are broken down into exploration, fabrication, development drilling, and production employees.

6.3.2. Income

D & M: The proposed project has the potential for generating a total of $16.5 billion in salary income over the 75 year period.

Disposition

The employment and income figures are in general agreement with BLM's high case estimates.

7.0 "No Project" Alternatives

7.1 Energy Alternatives to the Proposed OCS Leasing

D & M: Petroleum energy is expected to increase in price and decline in availability. Alternative energy sources, particularly coal and nuclear power, are expected to furnish an increasing share of the national energy supply. Some of the alternative energy sources to the proposed sale are: increased importation of oil and gas, coal gasification and oil shale, nuclear power, geothermal energy, and solar energy. There are problems associated with each alternative as summarized below:

7.1.1. Increased Importation of Foreign Oil

Balance of payments problems.

7.1.2. Coal Gasification and Oil Shale Development

Coal gasification: water supply and economic problems.

Oil Shale Development: water supply problems.

7.1.3. Nuclear Energy

Capital shortages.

7.1.4. Geothermal Energy

Reserve shortages.

7.1.5. Solar Energy

High capital costs.

Disposition

BLM is in general agreement with this assessment of energy alternatives. Section VIII.B. has been revised and expanded to reflect a more detailed analysis of energy alternatives.

Reference

White, D. E., M. E. Hinkle, and I. Barnes. 1970. Mercury contents of natural thermal and mineral fluids. In Mercury in the environment. USGS. Professional paper 713, pp. 25-28.

7. 35-1

AtlanticRichfieldCompany

Governmental and Environmental Affairs Division
515 South Flower Street
Mailing Address: Box 2679 - T.A.
Los Angeles, California 90051
Telephone 213 486 0741

J. L. Siva, Ph.D.
Science Advisor
Environmental Protection

April 7, 1975

Mr. Mike Carter
Chief, Division of Environmental Assessment
7663 Federal Building
300 N. Los Angeles Street
Los Angeles, CA 90012

Dear Mr. Carter:

Drs. D. Chamberlain, John Zimmerman and I (all of the Environmental Protection Department) appreciate the opportunity to submit our comments on the Draft EIS for the So. California Outer Continental Shelf.

Your office is to be commended for preparing such a careful and thorough report. You have set a high standard which we hope will be followed in environmental impact statements for other OCS areas.

Sincerely,

June L Siva

June L. Siva

Enclosure

JLS:smr

cc: W.F. Deeter
J.B. Hundley
D.W. Chamberlain
J.L. Zimmerman
M.C. Roman
B.C. Anderson

LB
File

BLM DRAFT ENVIRONMENTAL STATEMENT
SOUTHERN CALIFORNIA OUTER CONTINENTAL SHELF

General Comments

The report is a good effort and very thorough, considering the large area covered. The description of the environment, Geological Information, Climatology and Physical Oceanography chapters are very well done. Volume IV is excellent, and the information presented in graphic form will be very useful.

We have the following general suggestions as to how the final EIS could be improved:

1. ① Throughout the report it is not clear what the proposed "project" is whose impacts are being assessed. It would clarify the report greatly if an introductory section were added containing the "assumptions" under which the impacts are assessed. If we are working with a "worst case" scenario, this should be defined in an introductory statement. Such an introduction makes the whole report more easy to understand and evaluate.

2. A list of authors' names for each section should be added. It would be preferable if the authors' names appeared at the beginning of each section. When many "personal communications" are used as references, the reader has no way to trace the source of the comment if the section author is not known. Editors/compilers should also be listed.

3. Care should be taken to distinguish between hard data (referenced) and opinion or speculation. This is particularly important because the author isn't known. For instance, sections on the marine mammals were full of statements that were either speculation or opinion. The reader doesn't know whose the opinion is, if it's based on personal observation, or if it's just speculation. All statements that cannot be supported by

referenced works should be labeled as opinion, and then the basis for such opinion should be given. This is just good procedure for scientific writing.

Specific comments will follow.

SPECIFIC COMMENTS

Volume I

Page	Comment
126	Beroe should be underlined.
126, 127, 274	Should be consistent in underlining or italicizing of scientific names - either one or the other - not both in the same publication.
268	Use epipelagic - instead of epipelagial.
273	The trawl survey done by SCCWRP on 303 trawls includes many trawls accomplished by other workers and institutions. This is not clear and they should be credited.
291-292	Chamberlain (1974), referenced in the text, is not listed in the bibliography.

Volume II

Page	Comment
46 & 53	California State Lands Commission (1974). The final EIR can now be cited, rather than the draft. This citation is: Dames & Moore (1974) Resumption of drilling operations in the South Ellwood Offshore Oil Field from Platform Holly. Final Environmental Impact Report prepared for the California State Lands Commission. November, 1974.

Volume II (Cont'd.)

Page		Comments
69	②	Zooplankton are mentioned as having been observed to ingest oil particles, but the only example given of such ingestion is in copepods. What other zooplankters are known to ingest oil? Also, since no evidence for biological magnification is given, it should be stated as speculation. The last sentence of the paragraph concludes that biological magnification also could be "expected" for spilled diesel fuel, solvents or heat exchanger fluids. Why should we *expect* such biological magnification if we don't have evidence to indicate that it indeed occurs?
70	③	There will be a report by Dale Straughan coming out very shortly on sublethal effects of oil seeps at Coal Oil Point. Perhaps preliminary data could be obtained from her.
95	④	In this discussion, the polychaete *Capitella* is referred to as a "resistant" form. Recent work by Anderson (1973) has shown that *Capitella* is as sensitive as other poly-

Volume II (Cont'd.)

Page	Comments
	chaetes to pollutants, including oil. More data are probably available by now from Dr. Anderson at Texas A & M.
97	⑤ As far as we know, the only observations of drill cuttings below platforms off California have been done by California Fish & Game (Turner et al., 1971). This study should be cited. The size and other physical characteristics of drill cuttings depend on the formations from which they come. In some areas they resemble sandy silt, and in other areas, coarse sand, so it is hard to generalize about how they will behave or if they'll be colonized by benthic infauna and epifauna. Cuttings have been studied in the Gulf of Mexico (Williams & Jones, 1974), and these differ from those observed in the Santa Barbara Channel.
103	⑥ An example of some molluscan species with a 1° latitude distribution in the So. California Bight would help this section. Also, what are the other groups in which it occurs? This information should be given since a "personal communication" is cited and the reader cannot look the reference up.

Page Five

Volume II (Cont'd.)

Page	Comments
104	What are the "sensitive species" that "wil be killed" and "eliminated from the banks?
105	Why are no references cited when spilled or seep oil is said to end up in basins?
	⑥ Since the rather extreme statement is made that certain sensitive species "may be eliminated from these shallow water areas forever", some justification for it should perhaps be given. Which species are thought to be sensitive and why?
106	Connell (1973) is not listed in the biblic graphy.
107	Daugherty (1966) is not listed in the bibliography.
	⑦ Is the conclusion about harbor seals "aroused [by human activity] to such an extent that reproduction would cease" justified? They are abundant in Alaska's Cook Inlet, (see Alaska Dept. of Fish & Game, 1973) not far from offshore platforms, onshore storage and other support facilities. Have these breeding populations of harbor seals been affected? Perhaps Alaska Fish & Game Department could be of help in checking this. At least, it should be addressed before many conclusions are drawn.

Volume II (Cont'd.)

Page	Comment
108	⑧ Have oil companies proposed using channel islands for onshore facilities?
109	⑨ This is the first time we've seen the conclusion that the biological dangers of offshore drilling are potentially the worst to pinneped populations. Statements such as "simple platform installations or exploratory drilling off San Miguel Island could cause the elimination of sea lions, fur seals and harbor seals forever..." etc. should be substantiated. On what research is this conclusion based? If it is opinion, whose opinion? Based on what observations?
110	Ho (1974) is not listed in the bibliography.
121	⑩ "Intertidal and beach fauna" sounds redundant Does beach fauna mean animals above mean high tide? Was intertidal flora affected?
124	Spelling error. Pachygrapsus crassipes.
125	Generic name should be capitalized for Mytilu
129	Again, endemic molluscs and other "taxonomic groups" are mentioned, but no examples are given.
130	Examples are needed here also. "(2) some of the more sensitive endemics may have already been eliminated from other forms of pollution ..." Is there any evidence that this has happened. If so, it should be given.

Volume II (Cont'd.)

Page	Comments
130	The second sentence in paragraph 2 is unclear and needs some revision. Ditto the second sentence in paragraph 3.
131	Thomas (1973) is not listed in the bibliography. The spelling of mollusks/molluscs should be consistent throughout the report. Anderson et al. (1960) is not listed in the bibliography. Do we really know that "smothering will cause the principal damage to specific intertidal species of plants and animals where all individuals oiled will die?" Also, since we are really talking about individuals rather than species why not strike "species of" in that sentence? Spelling error in paragraph 2, "kelp bed pectens."
132	⑪ Can the generalization about damage to rocky shores versus sandy beaches be made for the whole California coast? It would hold true for most areas, but perhaps not all. ⑫ Do we have evidence that clean-up operations in intertidal areas result in "total destruction of the communities actually cleaned No specifics are cited.

Volume II (Cont'd.)

Page	Comments
132	The words "maximum" and "minimum" are probably reversed in the long paragraph. If not, the sentence is unclear.
133-146	⑬ How do these estimated losses compare to "natural" losses and what proportion of the Southern California population would be affected? The losses are real, but what is their relation to the population?
148 & 149	There is at least one page missing between these two pages.
152	"evidence" mentioned in the first line should be cited.
155 & 156	⑭ Ditto the sentence about the harbor seals covered with crude oil. When/Where was it reported?"
161	Spelling of Ebeling et al. (1971) is not consistent in the text and bibliography.
162	General Oceanographics (1971b) is not listed in the bibliography.
163	Turner et al. (1969) is not listed in the bibliography.
167	I have a letter from a former associate of Dr. Powell's that says he may have retracted the findings reported in Powell et al. (1970) Perhaps a letter could be written to Dr. Powell for the full story before this re-

Volume II (Cont'd.)

Page	Comments
	ference is quoted as absolute fact.
169	Takahashi & Kittredge (1973) is not listed in the bibliography.
173	⑮ Impact on sport fisheries and upon prey species (as food for commercial fish species) should also be treated. Should also mention the effects of an oil spill on gill netters and line fishermen.
177	Ketchum (1973) is misspelled twice, see reference p. 357.
177	Statement on long-term deleterious effects could be more objective. The 100% mortality is based on exposure to oil under laboratory conditions not in nature. Should point out the difficulty in extrapolating between the two situations.
178	When common names are first used in the text, it's a good idea to include the scientific name immediately following so there will be no misunderstanding as to the actual species. Mention how hydrocarbons produce these effects.
178, 3rd line	Use contaminating instead of contaminated.
178, 4th line from bottom	Mention that amount of damage is more or less proportional to the amount of aromatic hydrocarbons dissolved in the water or left in the

Volume II (Cont'd.)

Page	Comments
	emulsified oil. Should also indicate that its toxicity varies with temperature, time, source and type of oil.
179, 1st para.	Should have a reference to support the statement.
179, 4th para.	It would sound better to delete from the text ".....rather than on crude oil....."
214	The term "birds and animals" is not proper since birds are animals. The meaning is most likely birds and mammals, although this is no clear. This statement about disappearance should be documented as to evidence that this will occur.
215	Part of the last sentence on 214 is repeated here. Cross out the text to irreplaceable.."
216-218 ⑯	What information is there available as to industries' intent to develop facilities on offshore islands? This may not really be the case.
222, 3rd para.	Provide a reference or references for "Statistical evidence indicates....."
223, 1st para.	Change the wording from "...fishing for finfish and shellfish..." to "...fishing and gathering of molluscs and crustaceans."

Volume II (Cont'd.)

Page	Comments
227, 7th line from bottom	Should it not be "...nearly"...instead of "...nearby?"
232, 7th line from top	The word linear is misspelled.
234, 3rd para.	⑰ Cite references and/or basis for this statement on dissolution of pinneped rookeries. There have been no observed changes in pinniped utilization of rookeries near offshore oil platforms in Cook Inlet Alaska. Also, there seems to have been no affect on the migration of beluga whale in this same inlet. (Personal communication, Alaska Dept. of Fish & Game).
236	The statement that the Channel Islands are largely undeveloped is probably true, but it is not true that they present views of unaltered hillsides. The rock quarries and other development on Santa Catalina, the browsing by the buffalo herd; by the large feral goat population and the extensive rooting of wild pigs have certainly altered the face of this island. Also, domestic cattle have grazed for years on Santa Cruz and Santa Rosa Islands.
300	Tables beyond this page are not labeled as to table number.
408	See previous comment (97) on drilling cuttings.

Volume II (Cont'd.)

Page	Comments
410	⑱ 2. There is no solid evidence that biological magnification occurs, and this is stated on page 116 of this volume. Therefore, it probably shouldn't be presented as a conclusion.
412	⑲ 7. Abandonment of breeding rookeries is said to be "highly probable, although not proven..." On what evidence is it said to be highly probable. Has this happened elsewhere? The best thing to do would be to look at areas such as the Cook Inlet, Alaska to see if breeding rookeries have been affected by platforms or onshore facilities.
413, 1st para.	Include the additional information that other factors such as sand grain size and temperatures also affect length of time oil will remain in the sediment.
421, 2nd para.	⑳ Consider also that these fish (4.75 million pounds) would remain available to enhance the population by recruitment through reproduction which might, at least for some species, offset any loss caused by the spill. They would also remain as a portion of the available energy (food) supply for predators in the community.
476	Among the disadvantages mentioned under solar energy two important ones are not mentioned. They are land use conflicts and ecological impacts. These will be very important considerations if large "solar farms'

Volume II (Cont'd.)

Page	Comments
	are ever built. Environmental impacts associated with solar energy development have largely been ignored. The major impact would be removal of larg areas of natural habitat in order to construct a "solar farm."
Volume III	
255, 2nd para.	Should read "...10-ft. Isaacs-kidd midwater trawl (hereafter abbreviated as IKMT)..." instead of ". ...1-ft. Isaacs and kidd midwater Trawl (hereafter abbreviated as IKMI)..."
258	Sampling programs are now underway and have been for at least 2-3 years in King Harbor, Santa Monica Bay (John Stephens, Occidental College, Los Angeles and in Los Angeles-Long Beach Harbor, in San Pedro Bay (Alan Hancock Foundation and J. Stephens, Occidental College). See: Soule, D.F. and M. Oquri. 1973. Marine Studies of San Pedro Bay, California, Part II. Biological Investigations and 1974 Marine Studies of San Pedro Bay, California, Part IV, Environmental Field Investigations.

Literature Cited

Anderson, J.W. (1973)
Oil and Marine Organisms.
Progress Report to Amer. Petrol. Inst. covering research conducted in Oct. and Nov., 1973, 27 pp. mimeo.

Turner, C.H., J.C. Carlisle, Jr. & E.E. Ebert. (1971)
Offshore oil drilling, its effect on the marine environment.
Final Report to the Western Oil & Gas Assn., 97 pp.

Literature Cited (Cont'd.)

Williams, S.E. and J.I. Jones (1974).
The distribution and origin of bottom sediments in the Louisiana Oil Patch adjacent to Tibalier Bay, Louisiana.
Gulf Univ. Research Consortium prelim. rept.

Alaska Dept. of Fish & Game (1973).
Alaska Wildlife & Habitat
AK. Dept. Fish & Game, Jan. 1973, 144 pp.

b. Atlantic Richfield Company (ARCO)

ARCO submitted detailed comments on the DEIS primarily covering biological issues. Corrections and additions to the text have been made where appropriate. The following response to certain comments were made where we felt a more detailed discussion was required.

Disposition

General Comments

(1) A range of impacts resulting from a high case development of 14 billion barrels of oil to a low case of 1.6 billion barrels of oil is discussed throughout the EIS. This is stated in the description of the proposed Section I.A. of Volume I. Section III.B. has been revised to further define the scenarios used in the analysis.

Specific Comments

Volume II

(2) p. 69. A recent study on zooplankton uptake of hydrocarbons from crude oil has been added to the text as well as a reference to some evidence of biological uptake of hydrocarbons into a higher level of the food chain. Also see the added discussion of food chain uptake and depuration in Sections III.C.1.b. and III.C.2.

(3) p. 70. Dale Straughan's latest results have been consulted and included in the discussion in Section III.B. and III.D.6. Straughan has several papers in draft form which will not be available for several months.

(4) p. 95. Section III.C.2. The word resistant has been changed to opportunistic.

(5) p. 97. We have added the suggested reference of California Fish and Game by Carlisle et al. (1964) on drill cuttings off tower Hazel. We used the California Fish and Game Bulletin 145 rather than the final report to WOGA because it represents the final publication on the study. Refer to Section III.C.2. for a response to the statement that "the size and other physical characteristics of drill cuttings depend on the formations from which they come."

(6) p. 103-105. We have indicated the possibility of harm to one or more species which may be severely impacted because of extreme stenotopic environmental tolerances which probably result in their narrow geographic distribution. We are not able to predict which species may be killed with the present state of knowledge.

The reference for oil ending up in basins (California State Lands Commission, 1974) has been added.

(7) Refer to the response to the Dames and Moore comment on pinnipeds in Section IV.B.5.

(8) p. 108. See response to Dames and Moore comment letter for discussion of lease of Channel Islands for onshore facilities.

(9) p. 109. Refer to Section III.C.3. for discussion of impacts on pinnipeds.

(10) p. 121. Appropriate additions have been included in Section III.D.2.

(11) p. 132. From the literature consulted, a spill would impact a rocky intertidal area more than a sandy intertidal area within the proposed lease area, given an equal spill case.

(12) ARCO questions the evidence for the statement that clean-up operations in intertidal areas result in total destruction of the communities actually cleaned.

Evidence for this statement came from Battelle (1970) which stated that during the Santa Barbara cleanup:

> The only method found effective for removal of oil stains from rocks and jetties was high pressure water washing followed by sandblasting.
>
> Sandy beach cleanup was generally accomplished by spreading absorbent straw before and after arrival of the oil, pushing the mixture into piles either by hand or machines, and loading the accumulation into dump trucks for subsequent inland disposal. The requirement for extensive manual labor made beach cleaning operations extremely slow and costly. Motorized equipment such as graders, bulldozers, loaders, and straw mulchers were employed as much as possible when available.

In spite of some recent improvements in open water cleanup methods, intertidal cleanup methods have remained essentially the same. From the above description, there can be no doubt that sand blasting of rocky intertidal areas destroys the community. Much of the habitat of the sandy beach communities will be scraped off and hauled away during cleanup operations. However, since the scraping machines dig unevenly and sometimes scrape only a thin layer of sand, and because some species (*Emerita* and *Donax* for example) migrate within the upper surf zone, the sandy beach community may not be completely destroyed.

(13) p. 133-146. Due to the paucity of data from the OCS area, the "natural" losses of marine birds versus losses from oil spills is still an unknown at present. See Section I.D. for a discussion of ongoing and proposed studies which BLM is undertaking to fill in such data gaps.

(14) p. 155-156. The reference for this incident is Personal Communication by C. Brosseau to K. W. Kenyon (1971) as cited by U.S. Department of the Interior 1972. Final Environmental Impact Statement Proposed Trans-Alaska Pipeline. Prepared by a special interagency task force for the federal task force on Alaskan oil development.

(15) p. 173. Impacts on sport fisheries are discussed in Section III.I.5.; possible losses from oil are described in Section III.E.3.

(16) p. 216-218. See the response to the Dames and Moore comment letter. Their letter itself also indicates plans for use of the islands.

(17) p. 234. See Section III.D.4. for discussion of impacts on the Channel Island pinnipeds.

(18) p. 410. The sentence is not a conclusion, but merely indicates a possibility. See comments to Dames and Moore, Section IX.B.5.a.

(19) p. 412. Refer to the response to the Dames and Moore comments on pinnipeds.

(20) p. 421. This section is concerned with *interference* with commercial fishing *operations*. Although ARCO's comment presents an interesting sidelight, the point we want to emphasize is that a case 2 spill will cause sufficient interference with commercial fishing operations to result in a substantial dollar loss on a particular occasion.

35-33

Mobil Oil Corporation

612 SOUTH FLOWER STREET
LOS ANGELES, CALIFORNIA 90051

May 21, 1975

Mr. W. E. Grant, Manager
OCS Office
Bureau of Land Management, Room 7663
300 N. Los Angeles Street
Los Angeles, California 90012

Dear Mr. Grant:

Mobil presented testimony at the public hearing held in Los Angeles on May 6, 1975, with respect to EIS DES 75-8, Proposed 1975 Outer Continental Shelf Oil and Gas General Lease Sale Offshore Southern California, OCS Sale No. 35. Since that time we have had an opportunity to further review the comments made by Western Oil and Gas Association. Mobil supports such comments but offers these additional comments to augment those submitted by Western Oil and Gas Association.

1. Vol. 2 Pg. 29

① Mobil, as a potential lessee, takes exception to the concept conveyed in the EIS in that barging and tankering would be limited to test production. The economics and feasibility of transporting oil to shore from all potential lease areas may favor barging or tankering as opposed to pipelining. For example, the field may be too small to justify the cost of installing and operating a pipeline. The operator should be allowed to make this judgment.

Also, regarding the barging of test production, allowance should be made for also burning such fluids at the test site. This is even more critical to a safe test operation should the test production contain hydrogen sulfide.

2. Vol. 2 Pg. 216

② A statement is made concerning onshore communication sites in that they would generally be visible to all and could usurp land from recreational usage. This statement is not valid in its inference that recreational land would be used. Communication equipment would be installed in available high elevations along the coast should microwave communications be used. Therefore, existing buildings or those constructed for other usage would be the best locations. Where earth satellite communication is to be used, existing building or offices, not necessarily along the coastline, would be used.

② We do not see a need to use recreational land for communication facilities and therefore recommend the present statement in the EIS be so corrected.

3. Vol. 1 Pg. 16

③ The EIS states the limiting depth for platforms is 850'. This is the current water limit of a fixed pile platform. However, industry should not be limited to only current technology. For example, a 1000' fixed pile platform has been designed for the Gulf of Mexico. Other prototype tests are under way or being planned whereby platform depths can be further extended. As examples, industry is currently sponsoring a tension leg platform which is considered applicable to greater than 850' water depth. Also, a guyed tower platform is now planned for a 1975 Gulf of Mexico installation. This concept would also be applicable for deeper water depths than current technology provides.

Yours very truly,

H. J. Fitzgeorge
Region Vice President
Western Exploration and
Producing Region

c. Mobil Oil Corporation

Mobil Oil commented on barging versus pipeline transportation for production crude, potential conflicts between onshore communication facilities and recreational usage and depth limits for oil platforms.

Disposition

(1) It was not the intent to limit barging and tanking to test production only, and this statement has been clarified in the text in the FEIS.

(2) We are talking about a possibility for a potential conflict in this section and qualify it with the word "could" in the sentence.

(3) The statement in Section I. D. has been changed to 1200 ft. from 850 ft.

d. Additional Written Comments

In addition to the comments received during the public hearings and detailed comments received from other government and private agencies, 35 comments were received from government, industry and private citizens. Included in these were comments from the governors of Arkansas, Kansas, Mississippi, and Nebraska. Each individual letter expressed ideas concerning the proposed sale. These comments consisted of 30 proleasing and 5 antileasing opinions. The antileasing comments expressed the need for a national energy policy, state and local participation in lease tract selection, and concern for stronger laws on OCS regulations. The pro comments cited the need for jobs, energy, independence, petroleum needs in industry, the inadequacy of technology, and the requirements for fuel and natural gas.

We thank all the individuals and organizations who submitted comments for the time taken to review the draft statement. The comments are printed on the following pages. All of these comments were taken into consideration in the preparation of the final statement.

35-57

J. JAMES EXON
GOVERNOR

STATE *of* NEBRASKA
EXECUTIVE OFFICE
LINCOLN
68509

June 4, 1975

Manager, Pacific OCS Office
Bureau of Land Management, Room 7663
Federal Building
300 N. Los Angeles Street
Los Angeles, California 90012

Dear Sir:

As Governor of the State of Nebraska, I am writing to express my thoughts regarding the Proposed Outer Continental Shelf Oil & Gas Lease Sale offshore Southern California.

Nebraska is one of the great agricultural states of this nation. The economy of the State of Nebraska is very much dependent upon farming activities and the transportation thereof, both of which are dependent upon an adequate supply of petroleum products.

Inasmuch as the State of Nebraska contributes to the common good of our country and the world by its abundant production of foodstuffs, we believe that each state should contribute to this country's common good with whatever natural resources are available.

It is in this regard, I believe, that immediate exploration and development of petroleum and natural gas should be undertaken on the outer continental shelf off the cost of California as well as other outer continental shelf development.

We in the Midwest have a vital stake in the timely development of offshore oil and gas supplies. Any delays in freeing the energy resources of the Outer Continental Shelf heighten the threat of future economic hardship in this area of the United States.

More than one-fifth of all of the petroleum used in the Midwest comes from foreign sources and all imported oil carries the risk that the flow will be interrupted at any time. Any sudden and total cutoff of the imported oil would spell economic disaster to us. The importance of offshore exploration is truly related to agriculture's heavy dependence on petroleum energy.

Every acre that is cultivated and harvested requires 22 gallons of petroleum. In 1973, over the country farmers used an estimated 4 billion gallons of gasoline, 2.5 billion gallons of diesel fuel and 1.3 billion gallons of liquid propane gas. Nitrogen fertilizers accounted for 452 billion cubic feet of natural gas and fuel used to transport farm products to market exceeded 4 billion gallons.

I am told that by 1980 a 21% national energy gap is forecast. Under the present conditions, this gap can only be filled by imported oil or by a great reduction in our national economic and industrial strength.

While energy conservation and more efficient energy use are essential, their combined contribution will affect only a small percentage of the energy demand during the next two decades. Therefore, such supplementary energy sources as offshore development, nuclear, solar and geothermal must be developed as soon as possible, but all of these remain decades away with the exception of offshore development. Here is a source of energy that can be available in the near future.

Nebraska farmers will do everything possible to produce the foodstuffs necessary, but they must be assured of continuing energy supplies.

While encouraging rapid development of our offshore reserves, I am keenly aware of the potential problems that could adversely affect our environment. Parallel with the industry's development of these new fields comes an equal responsibility to develop more sophisticated techniques and programs to correct and minimize the problems attendent with oil leakage.

Working together we can certainly meet this challenge to this nation's independence and soundness both energy wise and as it affects our long-range fiscal soundness.

Sincerely,

J. James Exon
Governor

JJE:sa

35-60

RECEIVED
JUN 3 8 50 AM '75
BUREAU OF
LAND MANAGEMENT
COMMUNICATIONS SECTION

May 30, 1975

Bureau Of Land Management
Pacific Outer Continental Shelf Office
Washington, D.C. 20240

Hello:

I am writing in regard to the Environmental Impact Statement for a proposed oil and gas lease sale on the Southern California Outer Continental Shelf.

Are you aware that the EIS is totally insufficient in regard to dealing with potential dangers of increased drilling, such as the result of seismic activity, effects on the ocean's eco-system and effects on socio-economic concerns?

The planned drilling represents a short-sighted, expedient means of dealing with the energy shortage. I urge you to support sharp curtailment of all drilling on the Southern California Continental Shelf.

Very truly yours,

Susan Linzer
1761 Rodney Dr.
Hollywood, Ca. 90027

35-61

Lauralee Struve
6125 Wilkinson Ave.
North Hollywood, Ca.
91606

Dear Sirs,

I feel that the Envoromental Impact Statement is insufficient in regard to dealing with potential dangers of increased oil drilling, such as the result of seimic activity, effect on the ocean's ecosiptem and the effects on the ~~ocean's ecosiptem~~ socio-economic concerns.

The planned drilling represents a short-sided expient means of dealing with the present energy shortage.

The sanctioning of drilling in this area would not only create new enviormental dangers, but it would set a precedent for the tolerance of this kind of action that could result in similar activity in other areas.

The areas covered by the Draft EIS includes 1.6 million acres off the California coast divided into 297 tracts, extending from Ventura County to San Clemente.

Please don't destroy our famous southern california beaches

Thank-you
Lauralee Struve

35-62

Linda Mair
349I Wonder Veiw Pl.
Los Angeles,Calif.,~~91324~~ 90068

Bureau of Land Management
Pacific Outer Continental Shelf Office
Washington,D.C. 20240

June 2,I975

To whom it may concern -

Public hearings on a site-specific draft Environmental Impact Statement (EIS) for a proposed oil and gas lease sale on the Southern California Outer Continental Shelf were held in May .

I am writing to oppose the proposed drilling and stress the need for energy conservation . I believe that the EIS is insufficient in regard to dealing with potential dangers of increased drilling ,such as the results of seismic activity, effect on the ocean's ecosystem, and effects on socio-economic concerns .

Futhermore ,the planned drilling represents a short-sighted, expedient means of dealing with the present energy shortage . The sanctioning of drilling in this area would not only create new environmental dangers , but it would set a precedent for the tolerance of this kind of action that could result in similar activity in other areas . The areas covered by the Draft EIS include I.6 millions off the California coast ,divided into 297 tracts ,extending from Ventura County to San Clemente .

I would very much like to known when the Final EIS on the proposed sale will be scheduled ,and if possible , how can I reciece a copy of the Final EIS .

Thank you,

Linda Mair

Linda Mair

777

Mission Tesoro
P.O. BOX 3000 • LOS BANOS, CALIFORNIA 93635 • 209/826-4444

June 2, 1975

Mr. William E. Grant, Bureau of Land Management
Director, OCS Office
300 North Los Angeles Street, Room 7663
Los Angeles, CA 90012

Dear Mr. Grant:

I was unable to attend the off-shore drilling hearings in Los Angeles at my appointed times; however, I would like to make my feelings known and get my testimony entered in the records.

I am engaged in businesses related to tourism, including the food business, as well as the motel business. Each time there is a reduction in the supply of gasoline, my businesses suffer. It is my opinion that if a continued shortage of energy exists, many travel-oriented businesses will suffer. I contend that the more energy sources we can develop, the less we will have to depend on other countries. There is no way that we can guarantee the actions of other countries. Please include my name as a businessman supporting off-shore drilling.

Sincerely,

Jesus G. Monroy

Jesus G. Monroy
Owner & Founder, MISSION TESORO

JGM:mmp

A Treasure of Old California Hospitality

35-53

THE GREAT SEAL OF THE STATE OF MISSISSIPPI

THE CAPITOL
JACKSON

BILL WALLER
GOVERNOR

May 30, 1975

Manager of OCS Office
U.S. Department of Interior
Bureau of Land Management
Room 7663
Federal Building
300 North Los Angeles Street
Los Angeles, California 90012

Dear Sir:

Governor Waller desires to have his enclosed statement made a part of the record in the May 6-8, 1975, hearing on OCS for Southern California.

Your favorable consideration of this request will be appreciated.

Sincerely,

Herman Glazier

Herman Glazier
Executive Assistant

Enclosure

STATEMENT OF

WILLIAM L. WALLER

GOVERNOR

STATE OF MISSISSIPPI

SUBMITTED TO
U. S. DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT

FOR THE
PROPOSED 1975 OUTER CONTINENTAL SHELF
OIL AND GAS GENERAL LEASE SALE
OFFSHORE SOUTHERN CALIFORNIA

PUBLIC HEARINGS
MAY 6-7-8, 1975
LOS ANGELES, CALIFORNIA

While my views on leasing and exploration of the Outer Continental Shelf are a matter of previous record, I feel the importance thereof sufficient for me to reaffirm them for the purpose of this hearing.

Gentlemen, I wholeheartedly support the proposal to develop the petroleum resources of our Nation's Outer Continental Shelf - including the acreage under consideration in Southern California. We must proceed without delay to explore for, produce, transport and refine crude oil and natural gas which may lie beneath our Nation's offshore waters.

There is simply no readily available domestic equivalent to crude oil, petroleum products and natural gas in sufficient supply to meet the needs of our people. Even our farms are almost completely dependent on energy derived from petroleum. Farmers on both sides of the Rockies need gasoline to run their trucks, tractors, combines and automobiles. They need diesel fuel and number 2 heating oil to plant, harvest and dry crops. Continued uncertainty of adequate supply and equitable distribution thereof cannot be tolerated.

Propane has been a matter of particular concern to us in Mississippi. While propane represents only 3% of the national fuel supply, it is critical to certain needs such as drying crops, heating rural and mobile homes and processing some industrial enterprises. The shortage of natural gas has increased greatly the demand on our limited supplies of propane. For those citizens who depend on it - in Mississippi and elsewhere - there is no alternative. Our Nation must have adequate supplies of this fuel.

Many Mississippi State agencies, including the Governor's Office, the Agricultural and Industrial Board, the Fuel and Energy Management Commission, the Research and Development Center, the Office of Science and Technology, the Oil and Gas Board and the Mineral Lease Commission have cooperated in and maintained vigorous efforts in trying to solve our own energy problems.

Since it takes time to develop our domestic oil and gas resources, as well as alternate energy sources, we shall remain dependent on oil imports for some time, while the competition for foreign fuel is increasing. The oil-rich countries are themselves becoming more industrialized, as I observed first-hand a few weeks ago. The United States is now just one of several good customers for petroleum produced abroad, and the going price is whatever the market will bear.

We realize that we must become reasonably self-sufficient in energy and at the same time conserve some of our petroleum for future non-fuel uses such as lubrication and chemical feedstocks.

Gentlemen, our problems are now; and our solutions must be now! It is useless to try to assign blame for today's energy problems we endure today. Everyone-government, industry, an apathetic public and over-zealous environmentalists must bear some responsibility. If we agree, however, that our energy problems are man-made - due to poor planning - then it follows that we can achieve solutions through good planning.

While recognizing the need for environmental standards which assure personal health and safety, we can no longer afford further delay in providing energy for our country. Our energy objectives must take the highest priority in today's requirements.

We must stop thinking of our energy industries as adversaries, trying to get rich at our expense. The industries are servants to the people. We must all find ways - as we are trying to do in Mississippi - to provide tax and other financial incentives for them. Private companies cannot find and produce the oil and gas we need unless it is profitable to do so. So, we must make it profitable; not to help the companies, but to help ourselves to get the energy we need.

Mississippi is trying to face squarely the problem of energy supplies, and to work as an active partner with industry, with other states, and with the Federal government toward reasonable solutions. The problem is great and complicated, and many actions shall be required to solve it.

The Outer Continental Shelf - including those tracts under consideration in this hearing -- must be open to exploration without further delay under reasonable leasing regulations. It is beneath these waters that we are most likely to find the additional oil and gas we need so badly.

Mississippi has already taken steps toward leasing its state-owned off-shore properties - although these do not appear to be as potentially productive as others under consideration in Federal waters offshore

California.

We recognize that there may be some potential damage from an oil spill. We believe, however, that with modern technology this hazard can be minimized and kept at acceptable low levels - particularly when considered in the light of the consequences of going without energy. Offshore oil and gas drilling and production operations world-wide have been noteworthy in their proven record of minimal oil spills from accidental operational incidents. It is interesting to note that of all sources of oil pollution, offshore production operations represented only 2%, while automobile crankcase oil disposal resulted in 29% - the largest source of all pollution. During the nine-year period ending in 1973, approximately 2.6 billion barrels of oil and condensate were produced in the Gulf of Mexico. The amount of recorded spills during that period represents less than .02% (two one-hundredths of a percent) of the total. With current technology and under new regulations, we feel confident that spillage can be virtually eliminated.

Mississippi has a deep concern for the quality of our environment, and we are determined to maintain a healthful environment for our citizens. We have an effective aggressive air and water pollution control commission. Mississippi is the only state bordering the Gulf which has a wetlands protection law, and we have developed a coastal zone management program under the Mississippi Marine Resources Council. Mississippi was the first state to apply for coastal zone management funds from the Federal government. The declared public policy of Mississippi is to preserve the natural state of the coastal wetlands - and their eco-systems - except where their alteration, within acceptable limits, would serve a higher public interest. Mississippi is in the process of obtaining 40,000 acres of Wildlife Heritage land near the Coastal reaches of the State.

Despite our positive attitude toward the protection of our environment, we are concerned about the philosophy current in some areas that environmental issues are paramount to the public interest - superior even to food, clothing and shelter for our citizens. In fact, of course, all of these basic human needs are co-equal, and they must be considered in perspective.

Energy is one of these basic needs. Mississippi and the Nation must immediately do all within our power to see that this need is met.

Thank you.

William L. Waller, Governor
State of Mississippi

35-51

STATE OF ARKANSAS
OFFICE OF THE GOVERNOR
LITTLE ROCK

DAVID PRYOR
GOVERNOR

May 22, 1975

VIA AIRMAIL

Mr. William E. Grant
Bureau of Land Management
300 North Los Angeles Street
Los Angeles, California 90012

Dear Mr. Grant:

Because of the great necessity we have in this Nation to find additional oil supplies, I am very hopeful that a favorable decision will be made relating to further explorations of the Outer Continental Shelf project.

It is my understanding that new safety factors have been utilized to minimize the danger of oil spills and to accommodate the ecological and environmental problems which must also be a prime consideration in reaching this final decision.

It is also my understanding that a decision will be made relating to this matter within the very near future and I hope that every consideration will be given to allowing exploration to continue.

Very truly yours,

David Pryor

DP/ld

35-50

STATE OF KANSAS

OFFICE OF THE GOVERNOR
State Capitol
Topeka

ROBERT F. BENNETT
Governor

May 21, 1975

Mr. William E. Grant
Manager, Pacific Outer Continental
Shelf Office
Bureau of Land Management
Room 7663, Federal Building
300 North Los Angeles Street
Los Angeles, California 90012

Dear Mr. Grant:

For nearly 150 years, Kansas has been a producer and supplier of energy to the nation. Largely through the efforts of a vigorous, independent industry, exploration efforts have yielded 125 million barrels of oil and 1 trillion cu. ft. of gas per year during years of maximum production. Additionally, products from Kansas refineries and natural gas and natural gas liquids have fueled the nation, partly through a pipeline system that extends from coast to coast, including California. Many problems attended the growth and development of this industry, but ingenuity, intelligence and experience enabled Kansans to deal with problems of drilling and production, brine disposal, conservation, and unitization. Kansas has pioneered in solution of energy-related environmental problems, and today continues its pioneering efforts through State funding of tertiary oil-recovery processes.

This bountiful supply of energy also enabled Kansas to supply the nation and the world with tremendous quantities of grain and cattle. Agriculture is an energy-intensive industry, requiring billions of gallons of gasoline, diesel fuel and propane annually for farm equipment, transportation, and irrigation wells.

Additionally, tremendous quantities of natural gas are required for the manufacture of fertilizers, and petroleum products provide the feedstock for the manufacture of necessary herbicides and pesticides. Thus, Kansas has not only provided energy for the nation, but Kansas energy provides food for the nation.

Today, Kansas is a mature oil and gas producing state. Annual oil production is less than half the production during peak years, and gas production is declining. Annual additions to reserves have not kept pace with production. Kansas refineries now import more than half the crude oil that is refined each year.

Although Kansas is located in the geographic center of the conterminous United States, oil and gas leasing and production from offshore Southern California are vitally important to Kansas. Satisfaction of Californian and West Coast demand from offshore production would release other supplies for Kansas and her neighboring states during a period of decline in domestic production and reserves. Furthermore, Southern California is a proven petroleum province offshore, unlike the frontier areas of the Outer Continental Shelf elsewhere. Mounting evidence indicates that Southern California's energy resources can be produced without environmental damage, and industry has gained new skills in environments far more hostile than the California Offshore to produce oil and gas without mishap.

The current and projected curtailments of natural gas, the decline in production of domestic crude oil, and economic and political constraints on imports of crude oil limit the ability of Kansas to supply industry and agriculture. The ability, which is critical to the supply of food for the nation and for export, depends upon the development of additional domestic resources. The Southern California Offshore offers the most attractive immediate prospect for increasing domestic energy supplies.

I urge most strongly that the proposed oil and gas lease sale for the Southern California Offshore proceed with all speed.

Very sincerely,

Robert F. Bennett
Governor of Kansas

RFB:rs:nm

35-45

Offshore Marine Service Association, Inc.
INTERNATIONAL TRADE MART
2 CANAL STREET SUITE 2939
NEW ORLEANS, LOUISIANA 70130
TELEPHONE (504) 523-7363

May 19, 1975

Mr. William Grant, Manager
Pacific Coast OCS Land Office
300 North Los Angeles St.
Los Angeles, California 90012

RE: OCS Offshore Southern California
Public Hearing Regarding Proposed
Oil and Gas Lease Sale
F.R. Doc. 75-9263

Gentlemen:

It is with great pleasure that the Offshore Marine Service Association offers their comments and suggestions on the draft Environmental Impact Statement prepared for a proposed Outer Continental Shelf Lease Sale of lands offshore Southern California.

The Offshore Marine Service Association is a non-profit trade organization representing over ninety (90) owners and operators of nearly two thousand (2,000) American Flag vessels engaged exclusively in the offshore oil exploitation industry. These members, operating in the far reaches of the world, represents the expertise of the oil service vessels that has contributed to establishing firmly, that American know-how has been responsible for the development of the offshore oils of the world. The fleet is today, a sophisticated array of logistics support vessels used to move the men, machinery, supplies and the rigs themselves needed in the search for offshore gas and oil.

Although not directly addressed in the D.E.I.S. the favorable impact of such equipment should be examined. This marine equipment which is necessary for the development of any offshore oil reserve is composed of many types of vessels: crewboats, utility boats, supply boats, inland and ocean-going tugs, geophysical and oceanicgraphic vessels, bury & pipe-laying barges. Although it too is in draft form, the Bureau of Land Management is respectfully invited to review, as part of their study, the U.S. Dept. of Commerce D.E.I.S. entitled, "Maritime Administration Title XI, Vessels Engaged In Offshore Oil & Gas Drilling Operations" (MA-EIS-7302-75022-D). Under this cover will be found one of the most thorough researches to date, of the types of equipment found on OCS.

Therein is established that these ships, certificated and regulated by the U.S. Coast Guard are in compliance with the regulations of that and other agencies. Full compliance withthe standards of the Federal Water Quality Act and International Treaties dealing with pollution have long since been this industry's standard.

The vessels representative of this Association gainfully employ over ten thousand (10,000) persons that contribute by their employment to the economics of our nation.

If favorable consideration is given by the Bureau to the proposed lease sale, let it be clear, these workers and vessels will not suddenly dominate the waters off Southern California but rather, Southern California will have the immediate opportunity to employ hundreds and eventually thousands of their non-skilled presently unemployed citizens.

If leasing is granted and because the world has earlier demands on equipment of this type, there will be an immediate need for new construction with the attendant need for shipyard personnel and as the equipment is made available, countless new jobs will be created.

This is an industry vital to the economic status of the United States and it serves the even more needed energy demand.

Projected reserves in Southern California waters range from 6 to 19 billion barrels, with 14 billion barrels a reasonable planning projection figure. Gas reserves estimates run from 12 to 38 tillion cubic feet.

After extensive analysis of the environmental factors involved in developing oil and gas resources from beneath the OCS, we have concluded that these resources can be produced within minimal adverse impact on either the marine or onshore environments.

The only possible major adverse impact would be from a large accidental spill. However, advances in safety equipment, training and technology have reduced this possibility. Also containment equipment, open ocean skimmers and trained personnel will be available to reduce the potential for environmental damage in the unlikely event that a spill occurs.

In brief, there is an obvious need to develop oil and gas reserves domestically. We believe there is a major source close to our own shoreline, and the petroleum industry is committed to exploring and producing this oil and gas without undue environmental harm.

Recent studies have indicated that the Bureau of Land Management may actually have overestimated in their D.E.I.S. the potential for oil spills from the petroleum industry operations offshore Southern California. Estimates by Dames and Moore of Los Angeles would indicate the Bureau may be as much as two-thirds (2/3) high.

It is respectfully requested that the Bureau give favorable consideration to the proposed leasing in their final Environmental Impact Statement.

Very truly yours,

OFFSHORE MARINE SERVICE ASSOCIATION

W A Mayberry

W.A. Mayberry
Capt. USCG (Ret.)
Executive Director

WAM/eb

35-44

SKELLY

SKELLY OIL COMPANY

P. O. BOX 1650

TULSA, OKLAHOMA 74102

W. H. BAKER, MANAGER
ENVIRONMENTAL AFFAIRS
AND SAFETY DEPARTMENT

May 21, 1975

Manager, Pacific Outer Continental Shelf Office
Bureau of Land Management
7663 Federal Building
300 North Los Angeles Street
Los Angeles, California 90012

Re: Department of the Interior Bureau of Land Management Proposed Outer Continental Shelf Oil & Gas General Lease Sale Offshore Southern California (35)

Dear Sir:

Skelly Oil Company appreciates the opportunity of submitting comments on the subject lease sale in accord with the invitation published in the February 21, 1975 Federal Register. Skelly has been in the oil and gas exploration and production business primarily in the mid-continent section of the country for more than fifty years and has actively participated in previous Department of the Interior hearings on draft Environmental Impact Statements relating to Outer Continental Shelf lease sales and in the lease sales themselves.

Skelly supports holding as promptly as possible the subject lease sale proposed by the Bureau of Land Management. It is Skelly's view that the potential crude oil reserves are urgently needed by the United States now. We are continuing to see our need for energy grow and our dependence on imported foreign crude to increase at an ever expanding rate. As we have recently discovered, imported foreign oil is both expensive and disruptive to the country's economy and many of these supplemental foreign sources are subject to interruption at any time with little or no notice for political or other reasons.

Further, the country's domestic petroleum reserves are continuing to be depleted faster than they are being replaced. Skelly believes the country can best meet its energy needs by directing its exploratory and development efforts to those domestic areas where the potential for developing significant reserves is greatest and where such development can be completed with minimal risks to the environment. It is Skelly Oil Company's view that one of the more promising areas in which to now explore for supplemental energy resources is the Outer Continental Shelf Offshore Southern California.

We recognize there is concern on the part of some regarding the impact of offshore operations on the area's environment. However, it is Skelly's position that the petroleum industry has the expertise to properly develop energy resources that may be found in the areas under consideration with appropriate environmental safeguards and concern for other legitimate uses. We believe the performance of the industry in exploring for and producing oil under these conditions, particularly in the Gulf of Mexico, adequately demonstrates this capability. Further, improvements in technology and operating techniques are continuing to be made. These points were all covered in detail by expert witnesses at the Bureau of Land Management public hearing in Los Angeles on May 6-8, 1975.

Skelly, for its part, is committed to continuing its exploration and production operations in the Outer Continental Shelf with the concern for the environment it has demonstrated in the past.

In conclusion, it is Skelly's judgement that orderly, responsible development of oil and gas reserves in the Outer Continental Shelf Offshore Southern California should be initiated promptly, and we therefore urge the subject lease sale be held as soon as possible.

Very truly yours,

WHBaker

W. H. Baker

WHB:kg

cc: R. N. Miller
J. H. Oualline

35-46

TEXACO
INC.

3350 WILSHIRE BOULEVARD
LOS ANGELES, CALIF. 90010

W. W. MOORE
VICE PRESIDENT

May 23, 1975

Manager
Pacific OCS Office
Bureau of Land Management
7663 Federal Building
300 North Los Angeles Street
Los Angeles, California 90012

Reference: Southern California OCS
Draft Environmental Statement

Dear Sir:

As provided for in 43 CFR 3301.4 and Notice of Hearing by Director, Bureau of Land Management, Texaco is submitting the attached statement on the Draft Environmental Statement for Sale No. 35 of the Southern California OCS.

Yours very truly,

WWM:lw

Attachment

COMMENTS

ON

DRAFT ENVIRONMENTAL STATEMENT
SALE NO. 35
SOUTHERN CALIFORNIA OCS

BY

TEXACO INC.

May 23, 1975

Texaco Inc. appreciates the opportunity to present written comments to the Manager, Pacific OCS Office, Bureau of Land Management, in regard to the Draft Environmental Statement for Sale No. 35, Southern California OCS.

The Statement prepared by the U. S. Bureau of Land Management covers in an adequate manner their careful consideration of pertinent environmental effects and the obvious necessity for the United States to achieve energy independence at the earliest possible date. There is clearly no justifiable need for further delay in taking the remaining steps toward leasing the Southern California OCS Borderlands area.

Specific comments with respect to the Draft Statement are as follows.

In the category of exploration, the EIS contains a single interpretive analysis of the geological facts. In the world of competition exemplified by the oil industry, many alternative interpretations would be made. Each of these would affect the individual oil company's evaluation of the potential of each tract. In order to accomplish proper exploration of any given geographic basin or area, the principle of multiple interpretation must apply to insure that sufficient competition exists to gain the most favorable bids for the Federal Government. Under the free enterprise system, this competitive diversity in evaluation can be best demonstrated by the approximately $3 billion difference between accepted bids and the second highest bid in Gulf of Mexico sales over a period of years. In some of the suggestions being made to support U.S.G.S. evaluation of oil potential of the OCS through a Federal Oil and Gas Company, this multiple interpretation would no longer exist and all exploration would be on the single evaluation basis which will certainly eliminate discovery of substantial amounts of oil.

In the EIS we have noted a large variation between the U.S.G.S. estimates of potential reserves and those provided by the Western Oil and Gas Association study group. Both government and industry have already acquired nearly all of the information necessary for individual tract evaluation. It must be pointed out, however, that the oil companies as well as the U.S.G.S. are still in the process of collecting and evaluating final data from the lease tract areas. The fact is that reserves present beneath these tracts will remain estimates until wells are actually drilled.

Industry has clearly demonstrated that it has the capability to successfully drill offshore in the most hostile of environments. Compared to the North Sea, the Southern California OCS environment is relatively benign. Experience gained and equipment developed during some 85 years of worldwide offshore activity, particularly during the past 25 years, will be applied in the California offshore development. Industry possesses the technology to safely explore and to build drilling and production structures which will withstand storms and earthquakes substantially above predicted maximum intensities. Statements presented at BLM hearings in February and

May by competent seismologists point up the extremely minimum possibility that earthquakes would damage oil field installations either onshore or offshore when properly constructed. Furthermore, there is no indication from many years of observation that oil field operations can cause earthquakes of significance.

Industry is aware of its responsibility to protect the environment. The Environmental Impact Statement makes no mention of our record to date. Of the total of approximately 18,000 wells drilled in the offshore United States, only 4 major spills have occurred, none within the past 4 years. This represents a 99.9% overall performance on the part of industry. The scenario which the EIS outlines for an oil spill represents an extreme case with resulting greatly exaggerated figures. With the odds of 20,000 to 1 for a blowout of the Platform A type and the improved blowout prevention capabilities developed during the past years, these odds are now 60,000 to 1 against a spill of this type as calculated by WOGA members. Many of the potential environmental hazards formerly due to drilling operations which were cited in the EIS are already covered in the various OCS orders which are further insurance against accidental spills. Compliance with the regulations and supervision of offshore drilling by governmental agencies will continue and industry is confident that oil can be produced from the Borderlands area with risks well within acceptable limits. Neither exploratory nor producing operations have presented serious problems to the sports and commercial fishing industries. As pointed out in the statement relating to the fish populations, drilling and producing platforms may be considered as artificial reefs providing feeding grounds for large concentrations of fish populations.

The need for additional sources of oil for the Nation has been clearly demonstrated, yet the EIS does not address itself to this problem beyond local needs. In our own state oil production peaked in 1968 and has been declining ever since. Alternate sources of energy for California will not be a reality within the next 10 to 15 years. California has no oil shale or significant deposits of coal. During the time that the alternative sources of energy are being developed, we must bridge the gap by exploring and developing the remaining frontiers for oil production, namely the offshore areas.

In view of the need for energy and industry's ability to produce offshore oil cleanly and safely well within acceptable risk limitations, it is extremely important that a timely decision be made which will allow the earliest possible scheduling of OCS Sale No. 35.

35-41

LSD262(2118)(1-042236A142)PD 05/22/75 2115
ICS IPMRESA RNO
01129 NL RASTATELINE NV 207 05-22 610P PDT
PMS MANAGER,PACIFIC OFFICE BUREAU OF LAND MANAGEMENT DLR
ROOM 763 FEDERAL OFFICE BLDG 300 NORTH LOS ANGELES ST
LOSA 90012

IN A MEETING TODAY, MAY 22, 1975, IN OFFICIAL SESSON TO DISCUSS AS ONE OF ITS VITAL ISSUES, THE EXPLORATION, PRODUCTION, AND USE OF PETROLEUM ENERGY, ARE INDIVIDUALS AND REPRESENTATIVES OF THE HIGHWAY USERS CONFERENCE REPRESENTING THESTATES OF LASKA ARIZONA CALIFORNIA HAWAII IDAHO NEVADA OREGON UTAH AND WASHINGTON, THE CONFEREES IN ATTENDANCE REPRESENT MEMBERS OF THE PUBLIC, TRADE, AGRICULTURAL, AUTOMOTIVE AND COMMERCIAL HIGHWAY USERS FRATERNITY WORKING TOGETHER TO ENCOURAGE SOULD HIGHWAY AND OTHER TRANSPORTATION SYSTEMS POLICIES AND PROGRAMS.

WHEREAS: THE EXPLORATION OF ALL ENERGY SOURCES IS OF VITAL IMPORTANCE TO THE HIGHWAY TRANSPORTATION INDUSTRY AND;

WHEREAS: THE DEVELOPMENT OF NEW DOMESTIC SOURCES OF ENERGY ARE IN OUR NATIONAL INTEREST AND;

WHEREAS: THE OFFSHORE AREAS OF SOUTHERN CALIFORNIA PROVIDE 297 TRACTS BEING CONSIDERED FOR HIGHLY PROMSING OIL AND GAS LEASING AND:

WHEREAS: OFF SHORE IMPACT STUDIES HAVE DEMONSTRATED MINIMAL RISKS CONSISTENT WITH ECONOMIC AND ENVIRONMENTAL FACTORS;

NOW THEREFORE BE IT RESOLVED THAT THE HIGHWAY USERS CONFEREES HERE ASSEMBLED URGE THE BUREAU OF LAND MANAGEMENT TO TAKE QUICK AND FAVORABLE ACTION ON LEASING THE 297 TRACTS IN QUESTION AND BE IT FURTHER RESOLVED: THAT THE BUREAU OF LAND MANAGEMENT INCLUDE THIS RESOLUTION IN THE RECORD OF THE HEARINGS RELATING TO LEASING ON THE OUTER CONTINENTAL SHELF OF SOUTHERN CALIFORNIA.

MR KEITH ANDRESEN CHAIRMAN RESOLUTIONS COMMITTEE
ARIZONA HIGHWAY USERS CONFERENCES IN CARE OF HARRAHS TAHOE
HOTEL

From the desk of:

V.A. Kelley

35-39

Manager, O.C.S.
Los Angeles Ca-

I feel it to be of utmost importance for us to immediately start development of the O.C.S., I am sure the oil interests will uphold their part in Ecology protection-

Sincerely
V A Kelley
995 S Orange Grove
Pasadena Ca

35-38

Burns and Roe, Inc.

9800 South Sepulveda Blvd. ▪ Los Angeles, California 90045 ▪ Tel. (213) 776-5513 ▪ TWX 910-328-6139

Home Office ▪ 700 Kinderkamack Road • Oradell New Jersey 07649

May 20, 1975

Manager, Pacific OCS Office
Bureau of Land Management
Room 7663, Federal Building
300 North Los Angeles Street
Los Angeles, California 90012

Subject: Proposed sale of Federal oil and gas leases
Southern California outer continental shelf

Gentlemen:

For several years now, North America and its mode of living have perpetrated a myriad of concerns by the people about energy to support the mode without polluting the environment where the mode of living takes place. The study of energy and its impact on the environment of people is foremost, of late, in the minds of governments throughout the world. The struggle to control pollutants and, at the same time, preserve the mode of living, has created a period of energy development close to a condition of stagnation. At the same time, growth and mode of living continue consuming the energy resources in ever greater quantities.

As to environmental impact, the proposed sale of Federal oil and gas leases on the Southern California outer continental shelf locates those tracts to be beyond the three-mile limit of shore lines. View of drilling platforms at this distance from shore line is questionable as being offensive.

The real danger to the environment is oil spillage such as happened at Santa Barbara. This event created intense attention by both the public and the oil drilling companies. The science of oil drilling technology, surveillance and controls has reduced the risk of oil spills to a level considered acceptable.

Adverse environmental effects deal with the drilling platforms and activities associated with the construction work. These actions, which are necessary and practical, cannot be avoided in implementing the exploration.

Surveys and studies of projected requirements for oil and gas through the next 25 years dictate, until other reliable forms of energy can be developed, a program of energy control. That means finding oil with the capability of exploiting it as needed. Oil producing lands on the OCS are predicted to contain billions of barrels of oil. When considering the need for energy now and the time required to provide the nation's energy needs from nuclear, coal, solar, etc., it would seem the lead time to explore and develop proof of suspect resources to be of major importance. Therefore, it is vital to move forward with the program.

Delay of the leasing program could expose the industry to a decaying technology now in hand, plus exposure to critical need should foreign oil producing countries or other foreign actions, reduce the import supply.

The risk of depending on foreign oil places the nation in a vulnerable position when considering foreign political changes, economics, expanding requirements of foreign non-oil producing and industrial developing countries. The continual dependence on foreign supplies of oil by the United States must eventually reach a level where security is assured. The peril is real. Therefore, it is not reasonable to delay action directed toward developing resources.

Very truly yours,

John L Woods

John L. Woods
Vice President
Burns and Roe, Inc.
Pacific Region

35-37

EARLE M. JORGENSEN CO.
STEEL
LOS ANGELES, CALIFORNIA 90054

TELEPHONE (AREA 213)
567-1122

10650 SOUTH ALAMEDA STREET
MAILING ADDRESS: BOX 54633

May 20, 1975

Bureau of Land Management
Room 7663, Federal Building
300 N Los Angeles Street
Los Angeles, California 90012

Attention: Manager, Pacific OCS Office

Gentlemen:

I am writing you as a Vice President and representative of the Earle M Jorgensen Company. We are one of the largest distributors of steel and aluminum in the United States, with 22 plants and sales offices in 20 major metropolitan locations. We have been a distributor for more than 50 years and employ over 1600 persons.

We also have a Forge Division consisting of two plants, one on a 22 acre site in Seattle, Washington and one covering 4 acres in Los Angeles, California. The Seattle plant has steel making capabilities, in addition to the forging operations.

I introduce you to our company in the foregoing manner for more than one reason. One; our 1600 people are vitally interested in the security of their jobs and, in my opinion, this security can only be hampered by less domestic energy. Two; we are a sizeable factor in the use of fuel. Our business has been and will continue to be severely affected by shortages and increased dependence on imports of oil and natural gas.

We are operating 44 large furnaces and 5 boilers in our Los Angeles and Seattle Forging facilities. About a third of the units are in Los Angeles, with the balance in Seattle.

Although the Los Angeles plant is located in an area of moderate climate, limiting the number of days of natural gas curtailment and the area has large crude oil refining capacities, fuel costs (natural gas and diesel oil) have increased 58% between December 31, 1973 and December 31, 1974.

In Seattle, during the late sixties, the Justice Department forced the divestiture of the Northwest portion of El Paso Natural Gas Company's facilities and that entity was acquired by another group, which contracted for natural gas delivery from British Columbia. From that period through 1973, fuel costs were rather stable. Weather conditions dictated 17 to 25 days curtailment annually and diesel oil standby fuel was available at 12.5¢ per gallon. Since January, 1974, British Columbia has aborted their contract to deliver 800,000 cu ft daily at

23¢ per 100 cu ft and are now delivering 400,000 cu ft daily at $1.00 per cu ft. British Columbia crude oil deliveries have also been severely reduced and prices escalated. The 1974 winter season curtailment days jumped from 17 to 25 up to 70 to 80 days. Diesel oil costs jumped from 12.5¢ per gallon to 29.5¢ per gallon. Cost of natural gas to industrial customers, such as we, escalated from .0526¢ per therm in December, 1973 to .1043¢ per therm in December, 1974. Since the Northwest is basically dependent on imported natural gas and crude oil, the future is bleak.

The Washington Natural Gas Company is the local utility, obtaining their natural gas supply from Northwest Pipeline Corp. That company obtains their supply as follows: 60% from British Columbia; 10% from Alberta; 30% from the "Four Corners Area" of Utah, Wyoming, Colorado and New Mexico.

Currently, British Columbia has a very anti-American attitude and, in addition to quadrupling the price during the last year, have indicated that they will completely curtail deliveries to the United States by 1980. They will go from 60% supplier currently to zero in 1980. When that happends, this plant is in serious trouble without additional domestic suppliers.

Conversion to powdered coal or a similar alternate would require capital expenditures exceeding the net worth of the facility. Additional air pollution control facility costs would further compound costs of any attempt to convert.

Fuel costs in Seattle have increased 60% during 1974 and our ability to compete in a National market is surely being threatened in both our plants.

We are in full agreement with President Ford and Congress that we must conserve energy and reduce our dependence on foreign sources of oil.

The Environmentalists do have some valid arguments, however, when their points are weighed against our basic national security, they become obscure. Given the unstable nature of the world political scene, especially in the oil producing areas of the Middle East, no amount of defense dollars can buy us real security as long as we are dependent on foreign producers for nearly 7 million barrels of oil per day. That's what the energy crisis is all about - basic national security.

In conclusion, it is our opinion that we must have further development of new domestic sources of fuel. We are in full support of further exploration and utilization of the Outer Continental Shelf.

We thank you for this opportunity to express our views.

Sincerely,

Harry R. Christiansen

Vice President and
General Manager

HRChristiansen:cy

MGMLSAT HSA
1-029546A140 05/20/75
ICS IPMBOUA BSE
01010 MGM BOISE ID 257 05-20 1157A MDT
ZIP 90012

western union Mailgram

UNITED STATES POSTAL SERVICE
U.S. MAIL

35-36

MANAGER, PACIFIC OCS OFFICE
BUREAU OF LAND MANAGEMENT, ROOM 7663 FEDERAL BLDG
300 NORTH LOS ANGELES ST
LOS ANGELES, CA 90012

THIS COUNTRY IS IN A GROWING DOMESTIC DEFICIT DELEMMA FOR OIL AND NATURAL GAS SUPPLIES, BECOMING MORE AND MORE DEPENDENT ON EXPENSIVE INSECURE FOREIGN IMPORTS. THE OFFSHORE AREAS OF SOUTHERN CALIFORNIA INCLUDED IN THE 297 TRACTS BEING CONSIDERED FOR LEASING OFFER HIGHLY PROMISING SOURCES OF OIL AND GAS AND THE WAY SHOULD BE CLEARED FOR THEIR PROMPT LEASING.
WE RESPECTFULLY URGE FAVORABLE ACTION ON YOUR PART.

THERE ARE TWO PARAMOUNT FACTORS TO CONSIDER - THE ENVIRONMENT, BUT ALSO THE COMFORT, SAFETY AND SECURITY OF THE PEOPLE OF U.S. NOT ONE WITHOUT THE OTHER, BUT BOTH. IN THE LAST 30 YEARS, THERE HAVE ALREADY BEEN ABOUT 18,000 OFFSHORE WELLS DRILLED. ONLY FOUR SPILLS OF ANY SIGNIFICANCE OCCURRED, AND THERE IS NO EVIDENCE OF ANY LASTING DAMAGE TO THE ENVIRONMENT ON OR OFF SHORE. THAT MAKES THE ODDS BETTER THAN FOUR THOUSAND TO ONE AGAINST LARGE SPILLS, BUT IF THEY SHOULD HAPPEN, THEY WOULD BE CLEANED UP QUICKLY WITH NO PERMANENT DAMAGE DONE.

IDAHO AND OTHER INLAND STATES HAVE A VITAL STAKE IN ENERGY MATTERS. IDAHO, FOR INSTANCE, IS A TOTAL IMPORT STATE FOR OIL AND NATURAL GAS, AND OUR STATE'S FUTURE IS SOLIDLY LINKED WITH ACTIONS OF THE FEDERAL GOVERNMENT AND OUR COASTAL SISTER STATES. AGAIN, WE URGE QUICK FAVORABLE ACTION ON LEASING OF THE 297 TRACTS, AND ASK THAT THESE COMMENTS BE INCLUDED IN THE RECORD

IDAHO HIGHWAY USERS CONFERENCE
HOMER S DEAL CHAIRMAN

15:32 EST

MGMLSAT HSA

35-35

Robert Stone & Associates, Inc.

Engineering Geology • Soil Mechanics • Foundation Studies

19720 Ventura Boulevard — Woodland Hills, California 91364
(213) 346-0565 — (213) 873-7382

May 21, 1975

Manager, Pacific OCS Office
Bureau of Land Management
Room 7663, Federal Building
300 N. Los Angeles Street
Los Angeles, California 90012

Subject: Comments on Proposed OCS
Oil and Gas Lease Sale
Offshore Southern California

Gentlemen:

Here is a statement I was unable to present orally as scheduled at the hearings on May 6-8, 1975:

I favor proceeding with granting permission for drilling on submerged lands in the Channel Islands area providing this is done with appropriate safeguards.

Development of our off-shore oil is necessary to free the United States from the threat of oil embargoes and to off-set the probability of still further increases in the price of foreign oil.

Development of this off-shore source of oil will significantly help the economy by decreasing the drain of U.S. funds to the OPEC nations, and by providing significant revenue to our government.

Very truly yours,

Robert Stone

Robert Stone, Ph.D.

RS:bn

308

35-34

JAMES LAMB FREE, JR.
REAL ESTATE CONSULTANT
200 EAST CARRILLO STREET

REPLY TO
P. O. BOX 1268
SANTA BARBARA, CALIFORNIA 93102
(805) 963-1631

May 21, 1975

Mr. William Grant
Director O. G. S. Office
Bureau of Land Management
300 North Los Angeles Street
Room 7663
Los Angeles, California 90012

Dear Mr. Grant:

I understand that your office is being subjected to strenuous opposition by the so called environmentalists relative to your efforts to lease the outer continental shelf off southern California for oil development.

I would like to add my small voice to the true patriots who support the development of this critically needed energy source.

I am personally convinced that the oil companies and the government have "learned their lesson" regarding oil spills and that every possible precaution will be taken to insure the integrity of our environment as this new reserve is developed.

Very truly yours,

James L. Free, Jr.
James L. Free, Jr.

JLFJr:jm

cc: Mr. Harry Morrison
607 South Grand Avenue
Los Angeles, California 90017

35-31

WALNUT CREEK AREA CHAMBER OF COMMERCE

RESOLUTION

WHEREAS, the United States imports of foreign petroleum is increasing to meet domestic needs for energy, and

WHEREAS, it is vitally necessary to the Nation's interests that domestic oil reserves be developed and produced in order to relieve our dependence on foreign oil imports, and

WHEREAS, substantial oil reserves have been proven in the Santa Barbara Channel on the Outer Continental Shelf, and

WHEREAS, the oil industry has developed drilling and production techniques which greatly reduce the threat of blowouts, spills and the resultant pollution, and

WHEREAS, if oil companies are not allowed to develop the Outer Continental Shelf, the United States will become more dependent on foreign imports which poses a continuing threat to our economy and well being as a nation.

NOW THEREFORE, BE IT RESOLVED, the Board of Directors of the Walnut Creek Area Chamber of Commerce respectfully requests that The Bureau of Land Management open up the Federal lands on the Outer Continental Shelf for drilling and development in order to alleviate the Nation's increasing need for oil and gas.

Bill D. Horne
President

Jay P. de l'Eau

Jay P. de l'Eau
Secretary

35-32

SMITH TOOL
Division of Smith International, Inc.

P. O. Box 15500
17871 Von Karman Ave.
Irvine, California 92705
Phone (714) 540-7010 Telex 6-74575

May 16, 1975

Manager of Pacific O.C.S. Office
Federal Building
310 Los Angeles Street
Los Angeles, Calif. 90012

Dear Sir:

It is essential that the oil producers be permitted to explore and develop the offshore areas of California and elsewhere in order to help ensure an adequate supply of domestic crude oil to meet the fossil fuel energy needs of our country.

The continuance of a healthy drilling program will also ensure the continued employment of many thousands of men and women working in the equipment, manufacturing, service and supply companies of California whose jobs and income are dependent directly on the exploration, drilling, producing, transportation and refining of crude oil and petroleum products.

The undersigned implore you convey their wishes to the responsible State and Federal authorities that immediate steps be taken to permit the development of offshore oil resources.

We would appreciate being advised prior to the open hearings on offshore drilling so that our representatives may attend to express their views.

Very sincerely,

SMITH TOOL

J. C. Emick
Tom J. Brangfield Jr.
A. A. Akana
Lee Moellman
Gerald H. Vanlimburg
Adelaide C. Erickson
Kenneth R. Bush
Wesley T. Smith

H. G. Bentien
Ray Peterson
Charles D. Heard
Sue A. Shelen
Kathleen McLaughlin
Monique L. Nelson
Nelson Fuller
Gerald J Bryan
Molly Thompson

811

Shelby Wilhite
Lou Davis
E. R. Shaney
Pamela B. Colison
Margaret C. Woodall
Annie Taylor
Magda Sigert
Susan Sahadi
Alita Rabe
Joan Lake
Pamela Russell.
Linda Williams
Sharon Claytor
Peggy
Larry P. Creasy
Linda Matz
Rebecca Garner
Russell T. Parks
Sharon Kelly
Meg Strange
Susie Schreiber

Gregory Garrett
Laurie Jones
James R. Lyon
Bob Allison
Ralph D. Long
William Neilson
James A. Ashby
Reagene Young
RaMona Nystul
H. H. Smith
Joan H. Yost
Harvey Hefley
William B. Owen
Lloyd L. Garner
R. L. Dixon
G. Michael Herrick
Elma C. Owen

THE ABOVE SIGNERS UNDERSTAND THAT ALL PRECAUTIONS WILL BE TAKEN TO PROTECT THE ENVIRONMENT.

35 - 30

Oil, Chemical and Atomic Workers
International Union

CHARLES F. ARMIN, DIRECTOR
DISTRICT NO. 1

304 FREEWAY CENTER BLDG.
3605 LONG BEACH BLVD.
LONG BEACH, CALIFORNIA 90807

May 19, 1975

Manager, Pacific OCS Office
Bureau of Land Management
Room 7663, Federal Building
300 North Los Angeles Street
Los Angeles, California 90012

Subject: Views and Comments of the Oil, Chemical and Atomic Workers International Union, Relative to the Exploration and Development of the Petroleum Resources on the Outer Continental Shelf in the Channel Islands Area Off Southern California

Gentlemen:

Prior commitments made it impossible for the Oil, Chemical and Atomic Workers to appear at the May 6-8 hearings and express our views on the above subject. We are, therefore, taking this opportunity to give you our written statement.

There is little or no dispute concerning certain facts, and it is upon these which we base our position. These factual matters are listed below:

1. The United States is the world's largest consumer of energy and will have an expanding need for additional energy in the decades ahead.

2. Petroleum and natural gas are the major sources of energy in this Country.

3. Crude oil is the largest source of energy and many of the manufacturing units necessary to convert the crude oil into its multitude of energy developing commodities are already in place.

4. The United States is a deficit crude Nation and has to import a substantial percentage of its crude oil needs. Until we are able to develop significant sources of non-imported petroleum, we will continue to be dependent upon the OPEC Countries for substantial crude imports.

5. California is a State of expanding energy needs and is an energy deficit State. At the present time, California imports crude oil and natural gas from other parts of the Country as well as throughout the world. If we are to meet our present energy demands and the expanding energy requirements for the next two decades, we will have to fully develop our known crude and natural gas reserves.

6. The OPEC Countries boycott brought forcibly home to the American people the need to as rapidly as possible become self-sufficient in our energy supplies.

7. Although the development of the Alaskan oil and the completion of the Alaskan Pipe-line will be extremely helpful, it cannot possibly fulfill the total energy requirements of the State of California, let alone the balance of the Nation.

8. Existing information does indicate that substantial amounts of oil and gas resources lie within the Channel Islands area off Southern California. Estimates vary from six to nineteen billion barrels of economically recoverable crude. There is no way of determining exactly how much total recoverable oil will be in the reservoirs lying on the OCS until further exploration is conducted and substantial exploitation of the reservoirs give additional data upon which a more accurate judgment can be made. Most experts now agree from the data that has been collected that there ought to be at least fourteen billion barrels of potential production.

9. If development begins in 1975, production levels achievable within the next ten years could meet approximately 30% of the total energy demands in California.

With the above stated items being basically undisputed, we then must take a look at the potential environmental impact of a drilling program. With the exception of the one serious spill from the platform in the Santa Barbara Channel, a very good record has been made by the Oil Industry in its exploration and exploitation of tidelands and offshore projects causing little or no serious or lasting damage to the environment.

We understand that the Federal Government is now looking at adopting the California Division of Oil and Gas standards and regulations for drilling on tidelands and offshore areas. We urge the adoption of these State regulations as the minimum standards required for any drilling or production on the Outer Continental Shelf. We believe that with these minimum requirements and the record of the Oil Industry in its offshore drilling and and production programs, that there should be minimal adverse impact on the environment. The areas of high environmental priority have been identified and can be avoided. Normal exploration and development have little impact outside the immediate location of the facilities. Pipe-lines can be used at most locations to move the oil from the offshore facility to the onshore storage areas and would have only negligible environmental impact once they are in place.

There has been little, if any, thermal or air pollution associated with offshore activity. New technology has been developed to minimize oil spills and to contain and clean them up should an emergency situation arise. The availability of ocean-going oil slick skimmers, booms for containment of oil spills and closing sensitive shoreline areas, and clean-up crews with rapid response capabilities greatly reduce the potential for serious environmental damage.

Even though there can be no guarantee that there might not be some serious offshore spill, there is no greater probability of such spill occurring in offshore drilling and production than there would be from the importation of oil by tanker.

Minor spills would be much less detrimental to the marine environment than the sewage discharge as any small spill would be less than the natural rate of seepage and sewage discharge. The designation of established pipe-line corridors would reduce the hazards of damage to pipe-lines from overpassing vessels. In addition to the oil developed in the offshore production, natural gas would also be available in very large quantities with conservative estimates being in the trillions of cubic feet.

We recognize that we must develop other forms of energy as rapidly as possible in order to ultimately have available all of the energy resources needed to meet the needs of an expanding United States economy. We recognize that solar energy should and can be a competitive energy source for supplemental domestic space conditioning and water heating, but the initial investment required to install solar energy systems is very substantial.

Thermal projects must go forward, but are many years off from meeting any substantial percentage of the energy requirements of this Country.

The development of atomic energy power plants also must continue, but the economic outlays are very substantial in atomic energy and some of the problems, such as the disposal of the radioactive waste materials, need much more study before we develop a program of substantial proliferation of the atomic energy steam generating systems.

It is the summary position of our Union that although there could be some adverse environmental impact from the development of offshore facilities, that the "trade out" mitigate substantially in favor of the immediate development of the offshore petroleum resources in order that we can begin to minimize our dependence upon importation of the extremely costly foreign crude available to us through the cartelized OPEC Nations. The revenues from the development of the OCS operations should be in the billions of dollars in the next decade or two and should substantially reduce by the billions of dollars in real savings to consumers by not having to purchase foreign oil.

In addition to the benefit to the Nation from substantially improving our own energy resources, the development of our Outer Continental Shelf would create additional jobs in the building of the platforms, oil drilling and in the production and handling of the oil once it has been brought to the surface. Sometimes it is not recognized that there are several hundred smaller companies that have been created and depend totally upon servicing offshore oil facilities. The total impact of the development of our offshore oil resource is substantially greater than just the increase of employment by the Oil Companies themselves.

We urge that we get on with the business of immediately developing the oil and gas reserves that are available to us on the Outer Continental Shelf as it takes at least five to ten years lead time to bring about significant production.

Sincerely,

Charles F. Armin

Charles F. Armin, Director
District 1 - OCAWIU

CFA:dw

35-28

May 19, 1975

Mr. James L. Melikian
Western Oil & Gas Association
609 South Grand Ave.
Los Angeles, CA. 90017

Dear Jim:

On March 25, 1975, in regular session, the Board of Directors of the Visalia Chamber of Commerce, representing over 950 members, unanimously went on record in support of offshore oil drilling.

The following is a resolution adopted by that Board:

35-9

MATICH CORPORATION * *General Contractors*

MATICH BROTHERS
MATICH CONSTRUCTORS

YARD AND OFFICE
350 WEST VALLEY BOULEVARD
RIALTO, CALIFORNIA 92376
MAILING ADDRESS:
P.O. BOX 390
COLTON, CALIFORNIA 92324
TELEPHONE (714) 877-2100

May 12, 1975

Manager
Pacific OCS Office
Bureau of Land Management
Room 7663, Federal Building
300 North Los Angeles Street
Los Angeles, California 90012

Dear Sir:

Being unable to testify before the Committee holding hearings on the matter of drilling on the Continental Shelf, I am writing with the request that my letter be considered a written statement and entered into your records.

I am writing on behalf of the California Chapter of the Associated General Contractors of which I am a member of the State Committee on Fuel and Energy and I further serve as regional chairman for the Associated General Contractors of America through our national office in Washington, D.C.

The construction industry throughout the United States and particularly California has been driven to the brink of disaster as a result of the Arab Embargo, the environmental restrictions and the numerous other considerations that have materially contributed to the skyrocketing costs of all petroleum products.

The cost of these products in the past 18 months has increased between 100 to 150% and is continuing to rise. As a result of these increases our industry, the largest in the United States both in dollars and employment, has been faced with major reductions of work. With the limited amount of money available for construction, employment has been sharply reduced. While we speak of total unemployment in California at approximately 10%, the construction industry is at a staggering figure of approximately 30%, with some areas and crafts within the State as high as 50%.

The only way we can in any measure curb these rising costs and soaring unemployment is to utilize to the best of our ability the resources we have available. Most certainly the oil that we have on the Continental Shelf can be a major factor in bringing our costs down and putting more of our construction crafts back to work.

Manager
Pacific OCS Office
Bureau of Land Management
May 12, 1975

Page Two

I strongly believe that this industry and these crafts have more than earned this consideration. They have never failed to fill their proper roll in whatever crisis this country has encountered.

Your favorable consideration will renew the confidence and independence in thousands of proud productive citizens.

Yours very truly,

Martin a. Matich

Martin A. Matich
Associated General Contractors
of California
Associated General Contractors
of America

MAM:bb

cc: John Otto, AGC of Calif.
Jim Sprouse , AGC of America
Shirley Pettis, Member of Congress

35-8

OFFICE OF
WILLIAM F. CZULEGER
MAYOR

TELEPHONE
FRONTIER 21171

CITY OF REDONDO BEACH
CALIFORNIA

415 DIAMOND STREET
REDONDO BEACH, CALIFORNIA

May 12, 1975

Manager
Pacific Outer Continental Shelf Office
Bureau of Land Management
7663 Federal Building
300 North Los Angeles Street
Los Angeles, California 90012

Dear Sir:

Re: Draft Environmental Impact Statement for Proposed O.C.S. Sale #35 Off Southern California

In behalf of the citizens of the City of Redondo Beach I must object to the Federal Governments headlong dash to grant oil and gas leases on the Southern California Pacific Outer Continental Shelf. It appears that an expedient decision has been made to proceed with Sale #35 without allowing for full consideration of the public interest.

Until an adequate programatic E.I S. for the expanded national offshore leasing program is finalized, this City and its citizens cannot intelligently and responsibly evaluate and comment on the proposed Southern California program. If, as your office maintains, the Southern California program is part of an expanded national offshore leasing program, then more detailed resource base data and comparative cost/benefit analyses of the various offshore sites (Atlantic, Gulf, and Alaskan waters) is required before an intelligent decision to proceed with any site specific leasing can be made. Going forward with the Southern California sale at this time may or may not be in the national interest, but until additional data is provided such a determination cannot be reached.

It is this City's judgement that three areas of concern must be resolved before proceeding further with the offshore leasing program:

1) A national energy policy is needed, which would provide a framework within which to evaluate the impact of the Southern California lease sale.

2) Procedures are needed that ensure state, regional and local review and participation in the selection of tracts and the specification of conditions on the leases.

3) Legislation is needed that would strengthen existing laws controlling offshore oil operations.

It is hoped that the federal government can be responsive to these concerns.

Very truly yours,

William F. Czuleger

William F. Czuleger
Mayor

WFC/RWP/bs

35-5

875 Monte Verde Drive
Arcadia, California
91006

May 9, 1975

Bureau of Land Management
Pacific O.C.S. Office
300 North Los Angeles, Room 7663
Los Angeles, California 90012

Gentlemen:

DRAFT ENVIRONMENTAL STATEMENT DES 75-8

Please accept the following statements which I had hoped to present to you orally yesterday at the Los Angeles Convention Center:

> Never in the history of the world has the need for love, happiness and tranquility been greater; yet also never has the unsatiable desire for riches, power and fame been greater!
>
> Why not let history be our guide in making such an important decision as off-shore drilling. Whether or not we drill off these or other shores may not have much affect on our health and well being during our lifetimes -- but what of our children and future generations?
>
> That is exactly why I am here today -- I care about my children, other peoples' children and future generations. Where do you men stand? The time will come for you to stand up and be counted. I say we dare not take such an unretrievable step as off-shore drilling and jeopardize the lives of our children and future generations without a lot more soul searching, as well as the articulation of a national policy!
>
> I drove down here in an automobile, using gas and oil, and I trust this precious gas and oil was not wasted on closed minds and hearts, or that these hearings are actually a FARCE as many people claim!
>
> Next week we are having a Coastal Commission meeting regarding the Energy Section of the Preliminary State Coastal Plan. Let us face the real facts -- our salvation does not hinge on oil and nuclear power, but on SOLAR ENERGY -- let us all act accordingly!

Very truly yours,

Johanna Hofer
(Mrs. Edward H. Hofer)

CC: San Gabriel Valley Newspapers

35-24

The Fertilizer Institute
1015 18th Street, N.W.
Washington, D.C. 20036
(202) 466-2700 • Telex 89-2699

EDWIN M. WHEELER
President

March 10, 1975

Mr. William E. Grant
Bureau of Land Management
300 N. Los Angeles Street
Los Angeles, California 90012

Re: Environmental Impact Study --
Southern California Outer
Continental Shelf

Dear Mr. Grant:

The Fertilizer Institute is the non-profit trade association representing producers, manufacturers, retailers and broker/traders of plant nutrients. Our members produce over 90% of all nitrogen sold in the United States. Our nitrogen plants all use natural gas for feedstock and process with a current annual demand of 450 billion cubic feet or about 2-1/2% of the total amount produced in the United States.

Nothing speaks more eloquently of the nation's need for nitrogen than the attached two Senate Resolutions, S. Res. 289 and S. Res. 391 and their accompanying reports, enclosed herewith.

The industry is currently feeling the impact of the gas shortage by both curtailment as well as shutdowns. Pipeline companies simply don't have the gas. Equally critical is the need for additional capacity. Farmers use of feritlizer has been rising at a steady 5-7% per year compounded. To feed our nation as well as the millions who look to the U.S. for foodstuffs means one thing -- we must expand. Our current forecast is that nitrogen capacity must grow by 30+% by the early 1980's.

Some consideration is being given to using Mideast gas. However, the really thoughtful executives within the industry believe that to make our nation's food supply dependent on fertilizer from this volatile area is highly undesirable. I strongly concur. With off-shore gas available to us, it would be foolhardy, to say the least, to give the OPEC nations power over our nitrogen supply. Indeed, we would give them a literal life and death grip on our nation.

What is needed now is prompt action by our government to give the fertilizer industry the necessary feedstocks. We are powerless -- it is only governmental decisions which assure the nation of a dependable flow of food.

We respectfully request this letter and the enclosed documents be included as part of the record now being made before the Bureau of Land Management and that the agency proceed without delay in offering the 1.6 million acres outside the 3 mile limit for immediate exploration.

We would be pleased to present any additional information which could serve to expedite this matter. I can assure you time is of the essence.

Sincerely,

Edwin M. Wheeler
President
The Fertilizer Institute

Enclosures:

- S. Res. 289
- Report 93-691
- S. Res. 391
- Report 93-1138

35-10

ROTOR-AIDS, INC.

P. O. BOX 1238 · VENTURA, CALIF. 93001 · AREA CODE 805 642-8584
P. O. BOX 186 · GRAND ISLE, LA. 70358 · AREA CODE 504 787-2121

Helicopter Contractors

PLEASE REPLY TO:

Ventura
May 9, 1975

Mr. William Grant, Manager
Pacific Coast OCS Land Office
300 North Los Angeles Street
Los Angeles, California 90012

Dear Sir:

Business travel forced cancellation of my scheduled testimony at the May 7th, 1975 hearing in Los Angeles. Hence, I request that this letter be made part of the evidence in your evaluation.

I strongly support the offering of oil and gas leases within the Outer Continental Shelf off Southern California.

It is imperative that this nation promptly develop additional domestic petroleum reserves, so that it is not subject to the uncertainty of foreign supply and price. To do otherwise is irresponsible.

With today's bleak employment picture, the creation of real, not bureaucratic make-work jobs, would be a needed stimulus to the sagging economy. Many service companies, such as ours, could re-employ those furloughed during the offshore drilling suspension.

The technology now exists to safeguard spill possibilities.

National interests must be given priority over local desires. Supply and job needs far outweigh any chance of environmental deterioration. We all want a clean world, but it must keep turning.

Sincerely,

ROTOR-AIDS, INC.

Roy K. Falconer

Roy K. Falconer
Vice-President

RKF:blt

OFF SHORE TRANSPORTATION AERIAL PHOTOGRAPHY CHARTER

35-11

Bleitz Wildlife Foundation

DON BLEITZ - PRESIDENT

5334 HOLLYWOOD BOULEVARD
HOLLYWOOD, CALIFORNIA 90027
PHONE 463-6636

DIRECTORS
WM. AHMANSON
DON BLEITZ
ELMER BELT, M. D.
DR JEAN DELACOUR
DONALD W. DOUGLAS, JR
JAMES S. FASSERO
DR. IRA N. GABRIELSON
LUTHER GOLDMAN
ED N HARRISON
DR. CARL L. HUBBS
MRS. THOMAS KNUDSEN
K. C. LINT
MAURICE MACHRIS
DR. L. RICHARD MEWALDT
VAN NEWKIRK
LIONEL OGDEN
AMY D PHILLIPS
ERNEST PITNEY
JOSEPH R. RENSCH
CHANDLER S. ROBBINS
DOROTHY SANDLIN
LOUIS STATHAM
JOSEPH P. SZUKALSKI, M. D.
JACK C. VON BLOEKER, JR.
E. CARDON WALKER

May 5, 1975

Mr. William Grant, Manager
Pacific OCS Office
Bureau of Land Management
Room 7663, Federal Building
300 North Los Angeles Street
Los Angeles, California 90012

Dear Mr. Grant:

During the past months, when energy shortages began to contribute to the decline of our economy, I first began to listen more closely to the many public statements made by those opposing the development of our offshore oil reserves. I then began to first realize to what extent the average public was being misguided by statements that in many cases were grossly exaggerated or patently untrue--particularly the many which alluded to great and irreparable damage to marine biology, the beaches, and to the supposed irresponsibility of the petroleum exploration and production companies.

I am not a petroleum geologist nor a producer, but over a period of many years of association with exploration and production companies whose facilities have often been made available to me for studies in wildlife biology, and particularly in furtherance of our multivolume work, "BIRDS OF THE AMERICAS", I have become intimately associated with the operating personnel and the operation of many of these properties. With very rare exception, both the company policy and the operating employees have extended every effort to avoid damage to the environment and to protect the wildlife heritage associated with the production facility.

At this time it is extremely important to the future security and economy of our country, particularly in light of recent developments in Southeast Asia, that the United States become, as soon as possible, non-dependent upon energy imported from sources beyond our control

It has been conservatively estimated by very knowledgeable sources that reserves of approximately 14 billion barrels of oil and associated natural gas are available along the outer Southern California Continental Shelf.

It is important that development start now so that we are not again caught in an energy squeeze such as the Arab oil embargo brought upon our country.

I am confident that except for the Arab oil boycott, the Alaskan pipeline would have never become a reality. In the same way, there are obstructionists who oppose this development on the very basis that they oppose development of any kind, and while I can sympathize with the views of those who prefer the status quo, unfortunately we cannot exist, nor can future generations exist, on such a basis; nor can we roll back time to the era of the coal oil lamp or horse-and-buggy transportation.

There are many well-intentioned persons who, based largely on the very unfortunate and extremely well publicized Santa Barbara oil spill, are unalterably opposed to offshore exploration or production, in spite of the fact that in some 17,000 such wells only 4 major spills, such as the Santa Barbara accident, have occurred, and none since then.

This attitude, of course, if extended into other fields, would immediately ground all aircraft, remove all vehicular travel from our streets, preclude the use of electricity or natural gas and effectively stop everything in our lives, because everything we do has some attendant dangers, with the odds in most cases being far greater than the 17,000 to 4 ratio of prior offshore drilling.

Today there are vastly improved drilling and production techniques which, coupled with safety procedures and backed up by recovery equipment and protective booms and equipment, have immensely reduced the possibility of a major spill in the future and if such an accident did occur, the damage to beaches and environment of both the offshore islands and the coastline could be avoided.

I know of a number of areas where undersea natural oil seepage has occurred for centuries without any devastation of the surrounding marine resources.

The views I express here, of course, are my own and not necessarily those of all the directors of Bleitz Wildlife Foundation, and I am here writing as an individual, based on a lifetime of experience both as a business executive and as a working conservationist. The enclosed brochure will provide some background of the many thousands of hours of field experience with a very substantial contact over that period with petroleum production facilities within the wildlife environment.

Yours very truly,

Don Bleitz

DB:mr
Enc. Brochure

35-12

waca
western agricultural chemicals association

111 CAPITOL MALL ■ SUITE 102
SACRAMENTO, CALIFORNIA 95814
TELEPHONE (916) 447-2561

May 7, 1975
#1301

Manager, Pacific OCS Office
Bureau of Land Management
Room 7663, Federal Building
300 North Los Angeles Street
Los Angeles, CA 90012

Dear Sir:

The Western Agricultural Chemicals Association is a trade association representing the Pesticide Industry in the Western United States, including Hawaii. We offer the following written testimony showing our dependence on the Petrochemical Industry for most of our intermediate or basic chemical needs.

Each passing day we encounter a trend of allocation, shortage, and lengthening of delivery times, all of which have an adverse effect on the manufacturing capabilities of the Pesticide Industry.

I will explain a few specific problems and their effect on Pesticide Industry.

To entirely relate the shortages we face with the energy balance would not be completely accurate. The situation that exists is the result of many and very complex problems and, as you are aware, much effort is being spent to study the cause and effect of these problems. I think we can safely conclude that shortages are related to a combination of an expanding economy, with keener competition for available goods, the effect of the balance of trade payments, the international value of the dollar, ecological and environment factors, government restraints or controls that affect supply, demand and profits, overseas competition and of course, the energy balance. The latter has undoubtedly served as a catalyst to increase the rate of severity of all of these problems.

Concerning the Pesticide Industry, the following is a brief review of shortages and their effects:

1. Chemical Raw Materials
2. Packaging, and
3. Transportation

Considering chemical raw materials, one must bear in mind that essentially all finished chemical products are derived from basic raw materials originating from petroleum and minerals and through varied chemical reactions the desired end-product is obtained. Frequently, a finished product from one chemical manufacturer is a raw material to another manufacturer where the "value added" chain leads through several manufacturers to finally produce the desired end-use product. Regardless of the nature of the finished compound as to whether it is a pesticide, a plastic, a fertilizer or any of a host of products, many chemicals and solvents required are common. When any of the required components are in short supply, we are competing for the available material, not only with our competitors in the Pesticide Industry, but with numerous members of the entire chemical industry.

To describe the supply status of the numerous chemicals used in manufacturing of pesticides and their formulation would be a time consuming task, so I'll be as brief as possible.

In discussing petrochemicals, I am speaking of a host of different compounds. Many of the common petrochemicals, i.e., hydrocarbons, ketones, alcohols and esters are utilized in the synthesis of pesticide products and their subsequent formulations. These same materials, of course, have basic utilization throughout the chemical industry.

There is an increasing recognition that we are moving from a period of domestic abundance of crude oil and natural gas available at low prices to an era of potential shortages, greater reliance on foreign supplies and higher prices. But there is limited understanding of the effect these new conditions will have on other industries, particularly the closely related petrochemicals industry.

The petrochemical industry involves the processing of liquids extracted from natural gas (ethane, propane, and butane) or certain products derived from the refining of crude oil (gas oil and naphtha) to yield chemical raw materials called olefins and aromatics. From these a great many petrochemical intermediates are produced. These are further processed to yield a variety of industrial petrochemicals and polymers. These polymers, which include plastics such as polyethylene, polypropylene, and polyvinyl chloride, as well as polyester and acrylic fibers, are used to make a wide range of end-use products, including paints, carpeting, upholstery materials, clothing textiles, rubber, and countless molded and extruded plastic products.

The primary basic petrochemicals are ethylene, propylene, and benzene, demand for which is expected to rise at an average annual rate of between 6.8 and 9.5 percent, so that output by 1982 will be between 72 and 98 billion pounds a year.

The key basic petrochemical is ethylene. Demand for ethylene alone appears likely to rise at an annual rate of 9.0 percent. This means that whereas output was at an annual rate of 16 billion pounds in 1970, it will be up nearly threefold to 45 billion pounds in 1982. If this growth rate were to continue during the '80s, ethylene demand would again double in the 8 years following 1982, reaching 89 billion pounds per year in 1990.

For the past 20 years, the petrochemical industry has been able to utilize plentiful, low-cost natural gas liquids as its primary feedstock. Now this era is ending. Consumption of natural gas is exceeding the rate of discovery of new domestic reserves and the price of natural gas is rising. The price of natural gas liquids will rise accordingly.

As a result of the decreasing supply and increasing price of natural gas liquids, the future expansion of olefin manufacturing facilities will be based almost exclusively on heavy oil feedstocks. Facilities using heavy oil feedstocks accounted for only 12 percent of all ethylene produced in 1970. This type of production will be up to 24 percent of the total by 1975; and by 1980, it is expected that just under 50 percent of all ethylene produced will be generated from heavy liquids. As a result, consumption of heavy liquids in the manufacture of olefins will rise from 130,000 barrels a day at present to 780,000 barrels a day by 1980.

This change from natural gas liquid to heavy liquids feedstocks will necessarily deepend the interrelationship between petrochemical plants and refineries. Less than 10 percent of the natural gas liquid feedstocks are transformed into products which must be consumed in the energy sector. On the other hand, about 40 percent of heavy liquid feedstock is returned to the energy sector. A portion is suitable for direct blending into refinery products but the bulk of the return streams requires additional processing. Thus, closer interrelationships with refinery operations will be required in the future as the industry moves from natural gas to heavy liquid feedstocks.

It is technically possible for a petrochemical complex which uses heavy liquids as feedstock to operate independently from a refinery. It would include a simple crude oil distilling unit from which the feedstock liquids for the olefins plant would be produced. The additional heavy fractions produced plus energy products generated in the olefins plant would be sold. Economics, however, favor petrochemical complexes which are in close proximity to refineries which produce a full range of products.

As demand has grown, the size of olefins plants has also grown. In some cases production rates between the year 1960 and today have increased by a factor of 2 to 4. With every increasing demand the trend is toward still larger plants or chemical manufacturing complexes. The construction of these facilities represents a large capital investment and with such investments, the plant must run on a continuous basis. This in turn requires an assured supply of feedstocks. In the past, supply was no problem but with liquid hydrocarbons becoming the major feedstock the situation has changed. Increased refining capacity for generation of liquid hydrocarbons will be required as will an assured flow of crude oil to supply refineries. As a matter of fact, the required number of refineries are not now under construction.

All of these factors are leading to increasing shortages in the petrochemical industry, which due to the energy crisis, have arrived sooner than predicted.

With this review of only one type of chemical used by the pesticide industry and considering the large number of other chemicals used, one can visualize the scope of the supply situation that exists.

Concerning packaging, we utilize containers from four categories; steel, plastic, paper/corrugated and glass. The packaging industry, as with industry in general, consumes large quantities of energy in converting a raw material to a finished product.

The steel container starts as an ore and proceeds through many manufacturing, fabrication and transportation steps to deliver the pail or drum to hold a pesticide. In addition, these containers often require a type of interior lacquer or polymeric lining as pesticides may be corrosive to or be degraded by steel. In all cases, the container exterior requires painting followed by lithographing, silk screening or an adhesive backed paper label. These containers are mass produced on high speed lines. To achieve drying of interior and exterior coatings, ovens are used in which the container has a relatively short residence time. Again, energy is consumed to heat the oven.

The exterior and interior linings are produced by companies who are consumers of many of the chemical raw materials previously discussed. These companies are faced with the same chemical shortages as the Pesticide Industry. In fact, obtaining steel containers, with the interior linings necessary for our products, in adequate quantities and in the time intervals needed, is becoming a major supply problem.

I have already discussed petrochemical supply and, of course, petrochemicals are the feedstocks for the plastic industry; obviously, as petrochemical feedstock becomes more scarce, the plastics industry is immediately affected. Shortages are occurring of certain polyethylene containers. Delivery times are lengthening and total availability somewhat uncertain.

Paper and corrugated manufacturers are faced with pulp shortages and the same chemical shortages for all chemicals used in paper manufacture and processing. In addition, paper demands are increasing at a time the industry is in the process of modifying and upgrading their manufacturing facilities for environmental reasons. Some corrugated and paper supply, even last year, required lead times for delivery of up to three months. In today's market, the lead time requirement is increasing significantly.

Glass containers at this time do not appear to be in short supply. This is not a situation we expect to continue. As plastic container supply becomes tighter, some users will switch to glass to package their product. While I cannot speak for the glass industry, we do foresee increasing lead times and possible shortages.

The major difficulty we have encountered in the area of transportation is obtaining an adequate supply of tank cars and boxcars to move raw materials and finished products. As I am sure you are aware, rail equipment has been in short supply for the past couple of years. From a standpoint of energy conservation, coupled with economic considerations, rail shipments are superior to motor truck and rail usage is on the increase. This only serves to aggravate an already serious condition.

With truck movements we are experiencing increased time in transit as a result of speed limit changes and fuel availability. Small private trucking firms that have been used for short hauls or on a contract basis are experiencing difficulty in obtaining fuel supplies.

In the Pesticide business, supply dislocations, which may translate to a simple delay in a production step or a delivery, have a special significance. With the timing requirements of the crop growing season and the short term nature of certain insect infestations, a short delay can result in an irretrievable loss of food and/or fiber production.

As a result of these many factors, we find it increasingly necessary to modify our methods of operation to insure a continuing supply of our pesticides.

A few of the modifications we have made to obtain this end are as follows:

1. We have increased the lead time of our production planning significantly to permit early order of necessary raw materials and packaging.

2. We are now initiating availability inquiries and placing orders as much as a year in advance of our actual requirement time.

3. We adjust production schedules as to quantity and timing to match the availability of raw materials. A shortage of one material may result in inefficiencies due to obtaining the full required amounts of other materials which cannot be utilized.

4. We are reducing the number of pesticide formulation production locations to permit consolidation of raw materials and improve transportation utilization.

5. We have established closer personal contact with our suppliers to achieve better communications. A great deal of follow-up is required to adjust to changing conditions.

Through these and similar steps we hope to minimize supply problems that we encounter and reduce their effect on our ability to supply agriculture with the necessary pesticides to produce food and fiber to help feed and clothe a hungry world.

In closing I would like to emphasize that the Pesticide Industry is totally dependent on the Petrochemical Industry.

Sincerely,

Ivan C. Smith

Ivan C. Smith
Executive Director

ICS:rs

Assemblyman Mike D. Antonovich
41st Assembly District
California Legislature

35-17

As the question of whether or not to allow further drilling for oil off the coast of California is considered, we must keep in mind not only the impact of drilling on the immediate area involved, but also the impact of not drilling on the environment and economy of the nation as a whole.

The enviromental objections to offshore oil drilling have their foundation in a blow-out that took place almost six years ago on a Union Oil well operating in Federal waters. Serious violations of Federal regulations occurred, as there was not sufficient casing on the apparatus, resulting in a fracture on the ocean floor.

But we must remember that in the almost six intervening years many changes have occurred. Regulations have been stiffened, consideration of wells made more thorough (as evidenced by this hearing today), and the state of the art is much improved. Few doubt that with the proper regulation and inspection, drilling for oil off the coast can be done with very little fear of mishaps. For in fact, out of the 18,000 offshore oil wells drilled in waters around the continental U.S., only four spills of any environmental significance have occurred. None of these resulted in permanent damage.

Furthermore, considering the entire nation, the need for increased domestic supplies of energy becomes clear. The unemployment rate is nearing ten percent. Consumers of energy in all forms---gasoline, natural gas, and electricity, are hurting from the soaring prices of foreign oil supplies from which we get 6 of the 17 million barrels of oil used each day. Our national security demands that we have dependable domestic supplies of fuel.

These energy supplies are necessary and are going to have to be found somewhere. Environmentally, the question is what methods of getting energy will cause the least permanent environmental harm to our national resources. What are the alternatives? The Alaskan Pipeline? It won't be producing until 1980.

No, less availabilty of oil resources will mean an increased reliance on coal for generation of electricity. What is the environmental impact of that? Well, about one hundred miners a year are in mining accidents. Many more suffer from black lung. Increased reliance on coal is going to mean relentless strip-mining of the Rocky mountains.

Now, I do not suggest that offshore oil will eliminate the need for strip-mined coal. All I way is that to the extent we refuse to utilize our offshore oil, we mandate the utilization of more coal, with the increase in sulfur air pollution and strip-mining that go with it.

To oppose offshore drilling from a rational viewpoint means one is willing to offer other, equally realistic, alternatives. I have seen none as realistic nor as desirable as offshore drilling.

With proper inspection and regulation, we can prevent an oil spill. Under the findings of law suits, companies are liable for damage done by such spills. With new technology, in the event a spill does occur, it can be cleaned up quickly.

Since 1969, we have been at a standstill, frightened by an accident that would never have happened under the correct regulations. It is time we moved out from under that shadow, and got moving once again.

Assemblyman Mike D. Antonovich
41st Assembly District
State of California

May 13, 1975

Mr. William E. Grant
Director, OCS Office
Bureau of Land Management
300 N. Los Angeles Street
Room 7663
Los Angeles, CA 90012

Dear Mr. Grant:

I had hoped to deliver my testimony in regards to the proposed Outer Continental Shelf lease sale during the recent hearings, but I was taken aback by a business transaction. I would like to submit for the record my testimony on the following page.

Thank you,

Mr. Andy Janigian

Andy Janigian
Andy Janigian

I am a fruit broker -- and as such it may not be immediately clear why I am here to testify in favor of developing our oil and gas reserves in the waters off the California Coast. But I want you to understand that I do have a definite stake in the matter. And so do all my suppliers and all my customers. As a so-called "middle man" in the food distribution system, I am in a perfect position to see what great harm can be brought about by a serious shortage in petroleum.

The farmers and the growers who supply the fruit I deal with are dependent in a very real way on petroleum for the fertilizers and the insecticides that can produce bountiful crops. In these days of high mechanization, they must also have the gasoline and the diesel to power their equipment and move their fruit to market.

The truckers who move the fruit into our local markets and into the markets of the entire United States are, of course, totally dependent on an adequate fuel supply. When the produce is perishable, even brief delays and dislocations in distribution can result in spoilage and waste. Prolonged fuel shortages could result in chaos and real disaster in the fresh fruit business.

For this reason -- and for many others as well -- millions of Southern California housewives also have a definite stake in the continued availability of adequate petroleum supplies. Both the price and the availability of fresh fruit for their families are largely dependent on adequate sources of petroleum and petroleum products. Recent experience has made it clear that domestic supplies of petroleum are the only ones we can really count on. And it is equally apparent that our offshore areas are the only likely source of new domestic petroleum reserves. Therefore, I urge that oil and gas exploration and production in the Outer Continental Shelf area go forward quickly and as safely as possible.

Andy Janigian

35-19

G R Schoonmaker
Vice President
Production Exploration US & Canada

Marathon Oil Company

Findlay Ohio 45840
Telephone 419/422 2121

May 15, 1975

Manager
Pacific Outer Continental Shelf Office
Bureau of Land Management
U. S. Department of the Interior
7663 Federal Building
300 North Los Angeles Street
Los Angeles, California 90012

Dear Sir:

In response to the Department of the Interior's invitation in its notice of April 4, 1975, published in Federal Register, Volume 40, Number 68, Page 15917, relative to a proposed oil and gas lease sale Offshore Southern California, Marathon Oil Company respectfully submits its comments.

The energy needs of this nation to sustain its economic survival demonstrates the clear and urgent need for additional domestic reserves and production of oil and gas. Time continues to run against us. Our oil productive capacity and reserves are rapidly diminishing and we are facing natural gas shortages to the extent that many distributors and gas transmission companies are unable to accept new customers and are in fact forced to notify many existing customers of their inability to meet their requirements. The dangers of substantial dependency upon foreign sources have been repeatedly stressed by both government and industry.

The Outer Continental Shelf Area Offshore Southern California offers a possibility for hydrocarbon prospects. In view of our urgent needs it is clear that the proposed sale should be held at the earliest possible date.

We recognize and appreciate that apprehension of sincere individuals and organizations who oppose the holding of this lease sale. Marathon Oil Company, as well as the oil and gas industry in general, is equally sincere and concerned with the protection of the environment and with respect to current operations in the area is taking all reasonable precautions to provide such protection. Any new leases which we may acquire as a result of the proposed sale would be subject to such protection also. The Department of the Interior in establishing rules and regulations for operations will enhance such assurance. We are confident that the current rules and regulations of the Department of the Interior and the precautions employed by operators on the Outer Continental Shelf are adequate to minimize environmental impact adverse to the total environment, aquatic resources, aesthetics, recreation and other resources in the area concerned.

Marathon Oil Company, in association with other companies, has discovered and is producing oil and gas Offshore Southern California in an environment similar to the areas under consideration. Our exploration, development and producing operations have not caused any long-term adverse impact on the environment. We fully expect that the same will be true with respect to future operations.

In evaluating all of the factors, we feel that, in light of the reserve estimates set forth in the DEIS, the balance weighs heavily in favor of the proposed sale and urge that same be held at the earliest possible date.

Respectfully,

MARATHON OIL COMPANY

G. R. Schoonmaker
Vice President

GRS:kt

DRAFT

Marathon Oil Company would like to take this opportunity to comment in response to your notice and release of the Draft Environmental Impact Statement No. 75-8, Proposed Southern California OCS Oil and Gas Lease Sale.

The Statement is a site specific statement on 297 tracts of land containing approximately 1.6 million acres in five specific areas of the Southern California Outer Continental Shelf, referred to as Santa Rosa-Cortz North, Santa Rosa-Cortz South, Santa Barbara-Santa Catalina, Santa Monica Bay and San Pedro Bay. These specific areas have been designated after considerable review as described in Volume I, Section I-c, beginning on Page 9. Our comments herein will be directed towards those tracts and will attempt to express our views on the specific points you desired to be addressed and those which we feel are most important.

Western Oil and Gas Association submitted extensive testimony and data at the public hearings on May 7, 1975. Marathon Oil Company is a member of this Associa and fully endorse the testimony given. We fully endorse the Bureau of Land Manag plan to offer frontier area lands and in particular Southern California OCS lands in the effort to reverse the declining domestic supplies of fossil fuels.

The United States became a strong, mighty and generous nation by the resourcefulness of private oil industry which accepted the challenge and succeeded in search for and production of low cost energy fuels. This effort was successful because there was a reasonable economic incentive and the public was willing to accept reasonable risks. Areas of the public domain and private land which were potential energy sources were available for exploration.

Today, the prospects for large onshore oil and gas reserves which would reverse the continuing decline of United States fossil fuel production are not encouraging. Therefore, there is a critical need to explore the more promising frontier OCS areas. Southern California OCS is one area that has potential, near to exsisting production and refining facilities and required labor resources. A discovery in this area could be put on production in far less time than some of the more remote areas.

The environmental concern of others is understandable. We to are concerned and care that proper and careful planning and engineering precede any activity of exploration and production. The record of the oil industry for safety and concern for the environment in relation to past efforts is far and above normal. The recent improvements in both technology and equipment, the continued research and development and the additional and improved operating regulations has and will reduce the likelihood of an oil spill.

Records indicate that there has been only four major oil spills from offshore exploration and production operations sense commencement of offshore operations in the late 1940's. Studies have shown that there has been no lasting damage.

There is in our opinion, no other source of energy that could be developed and marketed more quickly than a large discovery of oil or gas. Coal is available in hugh known reserves and can be readily developed if the public is willing to accept environmental degradation and huge investment for conversion of equipment.

Nuclear sources of energy are available but there development are being hampered by unreasonable environmentalist. The time lag from conception to completion of a nuclear generating plant is six to eight years, so additional massive energy from this source is negligible. Other sources of energy are not in the immediate future, going to contribute significant quantities of energy. Considerable research and development together with huge investments will be required before any of the more sophisticated forms of energy will be economically practical.

Imports are always available for a price, provided another embargo is not instigaled against the United States. Unrestricted price increases by OPEC countries and others puts a severe strain on our balance of trade payments.

In order to return the United States to a position of self reliance on energy needs we urge that the program to make OCS lands available at the earliest possible date and under reasonable and prudent economic and environmental controls.

MLL:go
May 16, 1975

35-20

PHILLIPS PETROLEUM COMPANY
DENVER, COLORADO 80202
1000 SECURITY LIFE BUILDING

NATURAL RESOURCES GROUP
Exploration and Production

May 13, 1975

Manager, Pacific OCS Office
Bureau of Land Management
Room 7663, Federal Building
300 N. Los Angeles Street
Los Angeles, California 90012

Dear Sir:

This letter will confirm Phillips Petroleum Company's position relative to the proposed leasing and development of the Outer Continental Shelf area.

The energy problem has been a major topic of discussion for some time. The seriousness of this problem is being recognized more and more by the consuming public, as well as members of the industry. We are also members of the community and, as consumers, must also face the penalties of shortages and higher prices for oil and oil related by-products.

The 1973 embargo imposed by the oil producing Middle East countries made everyone aware of the uncertainties of oil imports not only here in the United States, but throughout the industrial nations. Canada has said they will not export oil to the United States after 1982 because of their own needs of oil resources.

Other energy sources such as oil shale, solar, nuclear and geothermal will eventually help, but only as a long-range solution as technology is developed for their full potential value. Therefore, the United States must develop, by exploration, new sources of domestic oil and gas which can be utilized at the present time and until such time as new energy sources are developed.

We must continue to produce and develop our known deposits, both onshore and offshore, and increase the exploration program for additional deposits. Our needs, even with strict conservation measures, far exceed our known reserves.

The most promising areas for discovery of large deposits are our Outer Continental Shelf areas. The Department of Interior, through the Bureau of Land Management, and the Geological Survey have ably administered, under their various Acts and Regulations, sound leasing, exploration and producing operations. They are adhering to requirements of the National Environmental Policy Act of 1969, and have continued to strengthen their safety regulations.

The concern of many citizens, especially those living on the coastal areas both east and west, about the impact on the environment that oil and gas operations would have or create, has been the main deterrent on timely leasing and development of the Outer Continental Shelf area. We believe the economic benefits to the Coastal States, in addition to the possibility of new energy sources which will benefit the entire United States, would far outweigh any potential adverse impact. The industry has established an excellent record of safe operating practices in offshore operations. Drilling and producing techniques are being continuously improved and implemented. The Department of Interior updates its rules and regulations for operating on the OCS as new techniques are developed. Operators are in compliance with these requirements.

Phillips Petroleum Company, as operator, has drilled over 300 wells on the OCS of the United States. These wells have been drilled in offshore California, Gulf of Mexico and the Cook Inlet of Alaska. They have been drilled without adverse effect on the environment.

Phillips Petroleum Company is particularly proud of its accomplishments in the North Sea, which proves industry's ability to operate under adverse weather conditions. Phillips, as operator, has drilled over 85 wells in this area in water depths ranging from 150 feet to 600 feet. The weather and sea conditions of the North Sea during the stormy winter months can develop wind velocities in excess of 100 mph, with waves reaching heights of 60 to 75 feet. These are at least as severe as the United States offshore Atlantic and Gulf of Alaska.

Industry is prepared to help solve the energy shortage, if given the opportunity. The people and governments of energy consuming East-West Coast states now have the opportunity to contribute to this effort by supporting further OCS sales. The Department of Interior should proceed with leasing as soon as possible.

No one is certain which, if any, of the areas will be productive of oil or gas. Geological and geophysical exploration can only determine the possibility of oil and/or gas accumulations. Only drilling can confirm production.

If the drilling of these new frontiers proves to be non-productive, or fails to increase our proven reserves in sufficient quantities, then development of energy sources must take an entirely new direction. If the United States is to maintain even their present energy position, industry should be allowed to explore these areas. Time is not on our side and further delays in the orderly leasing and development of the OCS will not serve the best interest of our nation.

Sincerely,

C.W. Corbett
Manager, Western Region

CWC:hn

35-22

FINLEY
. PULLING
. . BAILING .
OILWELL SERVICE INC.

PHONE GArfield 7-7265

P. O. BOX 7296
LONG BEACH, CALIFORNIA 90807
CALIFORNIA CONTRACTOR'S
LICENSE #253010

May 15, 1975

Mr. William Grant, Manager
Pacific Coast OCS Land Office
300 North Los Angeles Street
Los Angeles, CA 90012

Dear Mr. Grant:

With reference to our letter of April 21, 1975, stating this company's support for the OCS leases, Finley Oilwell Service would like to substantiate this with the following statements which we feel are pertinent:

1. With the development of new and more sophisticated automatic blowout preventive equipment along with the "spill containment" methods that are now available, the problem of oil spills present no greater danger than large tankers moving in to U. S. ports with imported oil.

2. With the United States trade deficit increasing monthly, mainly due to the large amount of crude oil being imported, this country's economic structure could be in danger unless offshore reserves are developed and produced, thereby reducing the oil being imported.

3. It is also unpatriotic for one state to attempt to prevent development of known offshore reserves while depending on other state's offshore production for its energy needs, especially when California consumes more hydrocarbons than any other.

Finley Oilwell Service would like to reiterate its strong support for OCS leases off Southern California.

Very truly yours,

FINLEY OILWELL SERVICE, INC.

C. A. Finley

C. A. Finley
President

35-21

Air Transport Association ata OF AMERICA

1709 New York Avenue, N.W.
Washington, D. C. 20006
Phone (202) 872-4157

JAMES E. LANDRY
General Counsel

May 16, 1975

Manager
Pacific Outer Continental Shelf Office
Bureau of Land Management
7663 Federal Building
300 N. Los Angeles Street
Los Angeles, California 90012

Dear Sir:

On behalf of the Air Transport Association of America, an unincoroporated association of the nation's scheduled certificated air carriers, I wish to express our support for the Bureau's proposed 1975 Outer Continental Shelf oil and gas lease sale of lands offshore Southern California.

The Air Transport Association, whose members constitute the major consumers of aviation fuel, is vitally interested in achieving the proper balance between the commendable objective of environmental protection and the nation's pressing demand for augmented petroleum supplies during this time of domestic energy shortfall and economic recession.

We wholeheartedly concur with the Western Oil and Gas Association that there is a critical need to develop new energy sources in the United States, and that oil and gas from the Outer Continental Shelf off Southern California may be a major factor in meeting future national energy requirements.

Without the development of potential domestic energy sources subject to appropriate environmental controls, the nation must become increasingly dependent upon costly, uncertain supplies of imported crude oil which, as evidenced by the 1973 oil embargo, will inevitably expose us to severe economic repercussions and dislocations.

Like the Western Oil and Gas Association, we believe that "the composition of economic activity cannot be expected to change rapidly" so that ongoing energy price and supply dislocations are closely tied to the recent economic slide into recession. Indeed, until adequate energy supplies again become available at reasonable costs commensurate with increased commercial activity, full employment and sustained economic growth cannot be achieved.

Accordingly, the Air Transport Association believes that the Bureau should approve, subject to reasonable conditions, early leasing and development of all 297 tracts in the proposed offering in the Outer Continental Shelf off Southern California. While we are not expert in this area, it would appear that such exploration and development can occur without undue environmental harm, particularly taking into account the many safety advances detailed by the Western Oil and Gas Association to prevent or minimize large accidental spills and other related environmental hazards.

In short, the proposed lease sale could constitute a useful first step to achieving domestic energy self-sufficiency and long-run economic recovery and growth at minimal environmental risk to affected Southern California areas.

Sincerely,

James E. Landry

James E. Landry
General Counsel

35-27

DRAFT TESTIMONY OF

TERRY C. FORTIER

BEFORE THE BUREAU OF LAND MANAGEMENT

MAY 6, 7 AND 8

Gentlemen, my name is Terry Fortier, and I am the president and chief executive officer of Commercial Transfer, Inc. and Fortier & Fortier Pipe Companies. Our main headquarters is located at 3475 W. Franklin, Fresno and 2559 So. East Ave., respectively.

I would like to thank you very much for allowing me, a small businessman, the opportunity to testify before you and explain the side of the small businessman.

My family, starting with my grandfather, C. L. Fortier and my father Russell Fortier and myself have been in the transportation business since 1912. For three generations our companies have given our clients safe and dependable service. I am a member of the California Trucking Association Board of Directors, although my remarks forthcoming are only on behalf of myself and my companies.

The immediate organizations that I operate employs over 100 people. We have over 180 pieces of rolling equipment. We are an expanding company that has grown as the years have passed by. My parent company, Commercial Transfer, Inc. has been in operation 13 years. We have grown from a small operation to that of an expanding, aggressive company. The reason why I am here to speak to you gentlemen today is because during the energy crisis our company had a drop from that of profit to extremely sharp decline.

As a businessman I am displeased to note that more and more money is leaving the U.S. and going into the hands of the Oil Producing Nations of the World while we have proven reserves right off the coast of the State of California. I have been told estimates run from as minimal as 6 billion barrels of oil to perhaps 19 billion barrels and perhaps even more. Needless to say gentlemen, being in the transportation and the pipe business, we need a substantive amount of fuel oils to serve the farm and urban communities in California.

I would like to relate to you some of the problems involved during the energy crisis: For example, since Commercial Transfer, Inc. is a young, expanding company, I had relatively little allocation for fuel so that our trucks could keep running on California roads. The allocation that I received, based on previous years purchasing, was about one third of what I needed.

Another problem that was a major concern was the price of fuel at truck stops along the various freeways and highways that my trucks journey on. For example, in some cases the cost of fuel increased from 20¢ to 30¢ a gallon more at truck stops. In addition, sometimes a maximum limit of 25 gallons was imposed.

Additionally, truck stop owners knowing that they literally had us over the barrel wouldn't accept credit cards for our purchases, they demanded cash. Many trucks were virtually stranded throughout the state on weekends. Some operators would seek any reason to stop selling it.

Another problem that faced us was that of needing fuel so desperately we had to purchase diesel fuel from various outside sources at prohibitive prices. This fuel not only was an inferior product but also did virtually much more damage than good. For example, our mechanics will testify that they had more problems with plugged fuel filters in the trucks than ever before. Not only did this cost become great in an economic sense, but in some cases was detrimental to the environment.

Now you may think that one of the reasons I am here is because I am selfishly interested in my business. You are correct. Gentlemen, I am selfishly interested as we all are in our livelihoods, but one must remember that my company moves food, medicines, fresh fruit and other necessities that all Americans now deem almost critical for their every day living.

For three generations the Fortier name has been involved in giving quality, safe and dependable service to its customers, but during the energy crisis, in some cases, our service was curtailed or impeded.

If we do have the potential oil and gas reserves off the coast of Southern California, I should like to know why we are not pressing forward in finding additional domestic energy sources. If I did not honestly feel and believe strongly about this matter, I would not have spent my time and energy to testify before you.

Thank you gentlemen for your time and courtesy.

Terry D. Fortier

March 26, 1975

Mr. James L. Melikian
Western Oil & Gas Association
609 South Grand Avenue
Los Angeles, CA 90017

Dear Jim:

I appreciate your sending to me the information regarding offshore drilling on the outer Continental Shelf. This material was briefed and presented to our Board of Directors at their regular monthly meeting last evening.

Without exception, our entire Board adopted the recommendation to support the acquisition of oil and gas leases, hopefully at as early a date as possible. It was their opinion that our dependence upon foreign nations for crude oil and liquified gas must be diminished before it becomes dangerous to the economy and security of our country.

We appreciate the opportunity to participate in this endeavor and sincerely hope that our assistance will, in some small way, help to accelerate the oil and gas exploration on California's outer Continental Shelf.

Sincerely,

Don Ritter
Manager

WHEREAS the United States is presently importing six million barrels of oil per day. As was learned during the recent energy crisis, this depending on outside sources for energy needs allows our nation to be manipulated at will by foreign powers

WHEREAS the national security of the nation is obviously dependent upon a secure domestic oil supply, sufficient to guarantee its sovereignty

WHEREAS there have already been more than 17,000 offshore oil wells drilled around the Continental United States, only one significant temporary pollution problem as a result of these activities

WHEREAS the geological estimate of potential recoverable oil offshore of California is approximately 14 billion barrels, which is greater than the present estimate of the entire Alaska North Slope reserves

WHEREAS the English Channel, which undergoes some of the worst weather in the world has over two-thirds of its area presently leased for offshore oil drilling, and this drilling activity is rapidly proceeding. Ironically, most of this exploration is being conducted by American developed techniques. In contrast, approximately 3% of the potential offshore oil production areas of the United States are presently under lease

WHEREAS the present estimate is that it will take 24 fixed offshore drilling platforms in the offshore Southern California area

WHEREAS without any unusual delay, the first significant production will not be available until 1981

THEREFORE BE IT RESOLVED that the Board of Directors of the Visalia Chamber of Commerce approve the concept of offshore oil drilling in Southern California waters under stringent government regulations, rigidly enforced, as proposed in the upcoming Federal Lease Sale, and that the program proceed without delay.

President

Donald W. Ritter

Manager

cc: Wm. E.Grant, Mgr. Pacific O.C.S. office, Bureau of Land Management

☆U.S. GOVERNMENT PRINTING OFFICE: 1975 - 684-632/5, Region No. 9-I

BLM LIBRARY
RS 150A BLDG. 50
DENVER FEDERAL CENTER
P.O. BOX 25047
DENVER, CO 80225

Bureau of Land Management
Library
Denver Service Center

DATE
RETURNED

(Continued on reverse)

TD 195 .P4 C346 1975 v.3
U. S. Pacific Outer
Continental Shelf Office.
Final environmental
statement, proposed 1975

BLM LIBRARY
RS 150A BLDG. 50
DENVER FEDERAL CENTER
P.O. BOX 25047
DENVER, CO 80225